U.S. BOAT & SHIP MODELER

RADIO CONTROL

U.S. BOAT & SHIP MODELER

WINTER 1995
DISPLAY UNTIL FEB 1.

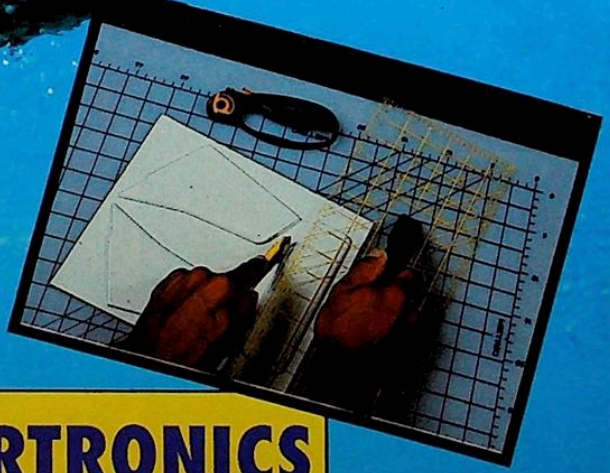
THE **COMPLETE** NAUTICAL MODEL PERIODICAL!

WE TEST

- Thunder Tiger 3.5cc Outboard
- Kinetics' Combat Hovercraft

BUILD A RIVER WORK BOAT — WITH PLANS!

HOW TO:
PROTECT ELECTRIC GEAR FROM WATER DAMAGE



POWERFUL WARSHIPS:
SOVIET HELICOPTER CARRIER/CRUISER
BATTLESHIP U.S.S. MASSACHUSETTS

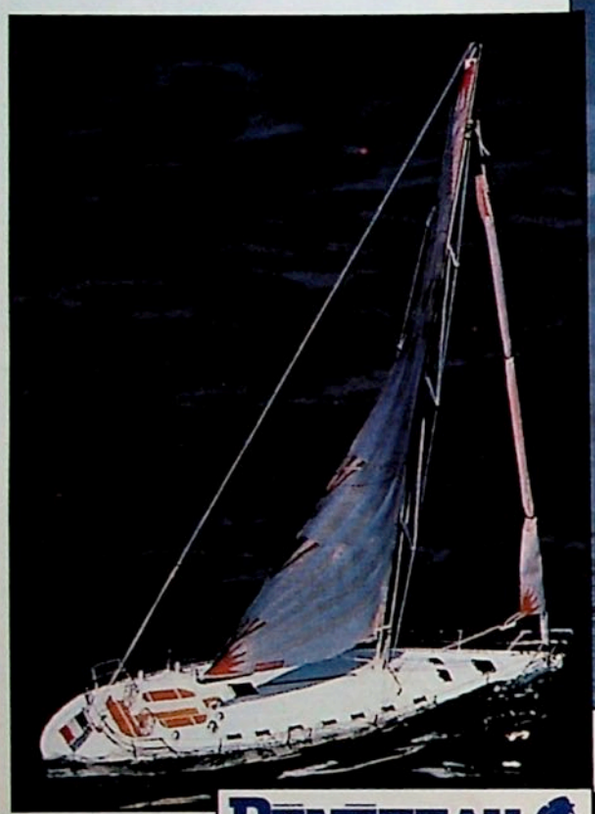
$3.95 CANADA $4.95

04 >

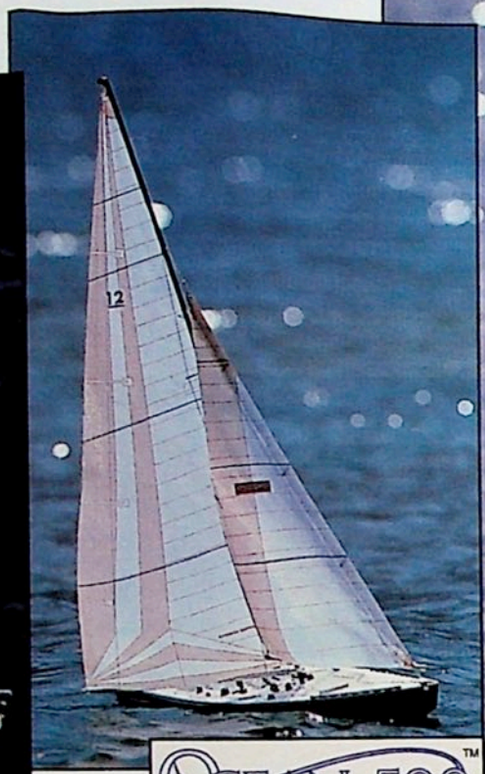
0 71486 01340 2

Radio Check: ✓ AIRTRONICS ACE R/C DATAMASTER

Pleasure Cruises. On sail now, from Kyosho.



BENETEAU
FIRST 53 F5
Length: 24.8 in Height: 41.3 in
Each Boat Requires: 2-channel radio

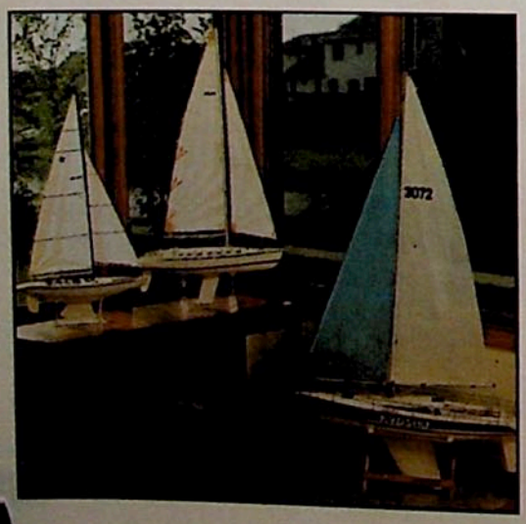


OCEAN 500™
Length: 19.7 in Height: 31.2 in

FAIRWIND II™
Length: 35.4 in Height: 61.4 in

Watching one of these scale sailboats slip out over the water is one of life's simple pleasures.

In fact, you can take command of a Kyosho sailboat without having any previous R/C experience at all.



Removing the glossy, 1-piece ABS hull from the box moves you from square one to nearly done without doing any building, sanding or painting. And if you can cut, apply glue or drive a screw, you have all it takes to add finishing details.

Compact and the quickest to assemble, the 19.7" **Ocean 500** offers the look and performance of full-size America's Cup racers, right down to the hydrodynamic winged keel design. The **Fairwind II**, with its 35.4" hull and towering, 5' mast height, lets you dominate other boats with sheer, majestic size, while the **Beneteau** puts you in command of a trim, 1/25 scale replica of the world's most luxurious pleasure yacht.

In fact, with the choices available and the ease of building them, the hardest part of owning a Kyosho Scale Sailboat is going to be deciding whether to display it on its stand...or to slip away for a short, relaxing cruise.

Either way, the pleasure's yours... from Kyosho.

For a free brochure and the location of the dealer nearest you, call **1-800-682-8948,** ext. **141L.**

KYOSHO®
THE FINEST RADIO CONTROL MODELS

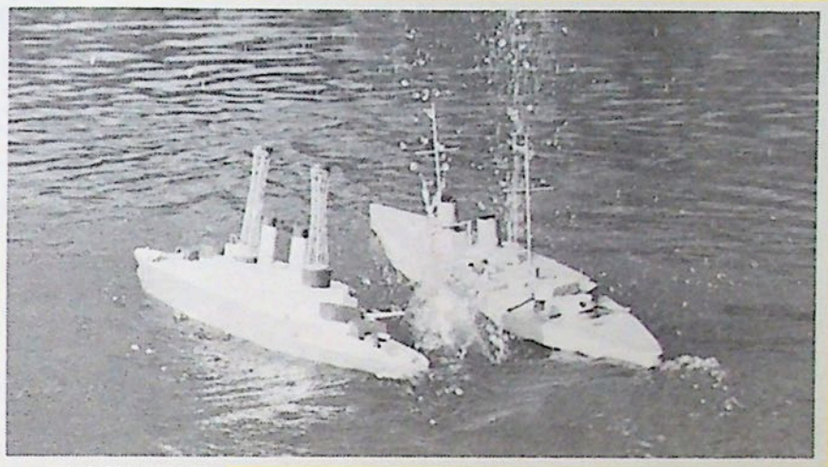
Distributed Exclusively Through **GREAT PLANES®**
GREAT PLANES MODEL DISTRIBUTORS COMPANY
P.O. BOX 9021, CHAMPAIGN, IL 61826-9021

© Copyright, 1993—3070338

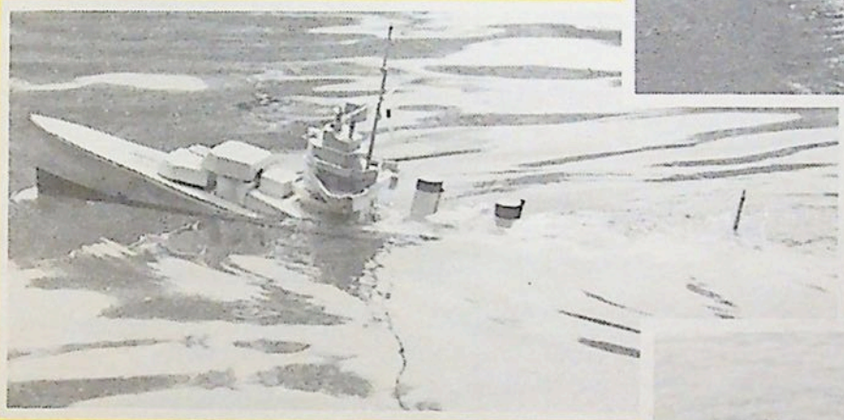
HAS *THIS* EVER HAPPENED TO YOU?

Has your model warship ever been caught in a lake full of BB cannon armed warships seemingly bent on mutual destruction ?

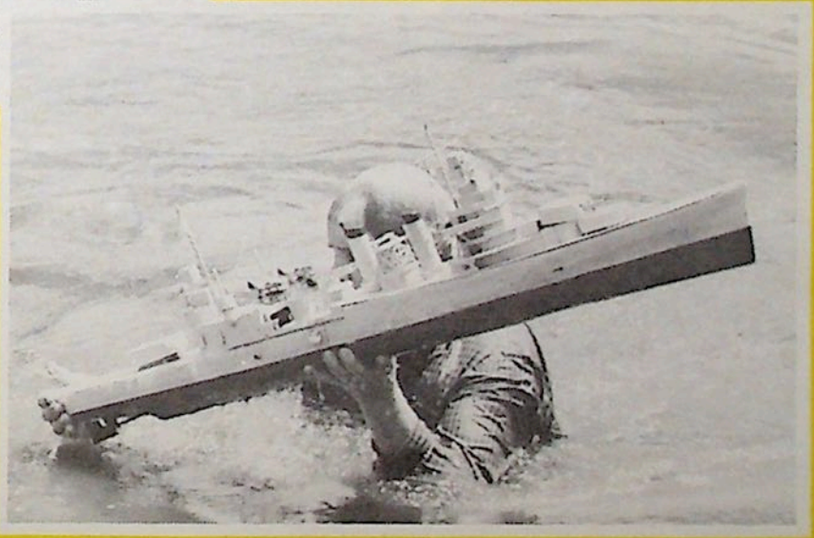
Has your model warship ever actually been SHOT AT with BBs by another that was really trying to SINK IT ?



Has your model warship ever actually SUNK because its soft balsa hull skin was so full of BB holes that it could not stay afloat ?



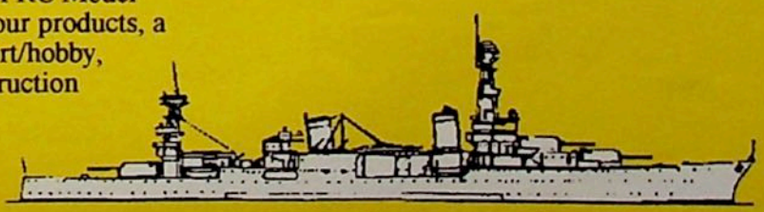
Have you ever gotten your pride as well as your pants wet while recovering a sunken RC model warship ? Have you ever taken REVENGE on your opponents for doing all these things to you and your RC model ?



If Not .....
YOU DON'T KNOW WHAT *FUN* YOU'VE BEEN MISSING !!!

DISCOVER RC MODEL WARSHIP COMBAT

SWAMPWORKS MFG. offers a full line of 1/144 scale warship kits, BB cannons, bilge pumps, and accessories made just for the sport of RC Model Warship Combat. For a catalog of our products, a brochure about this exciting RC sport/hobby, and a copy of the battling and construction rules of the INTL R/C WARSHIP COMBAT CLUB send $ 6.00 to SWAMPWORKS MFG. For a two hour VHS video tape of model warships in action, add $18.00.



SWAMPWORKS MFG.

formerly *SKUNKWORKS MFG.*

VISA - M/C

1810 N. Farm Rd. 197, Springfield, MO 65802 Ph (417) 831-2309 9-5 CDT Mon-Fri

CONTENTS

ON THE COVER:

The newest in electric RC craft is this SK-5 U.S. Army Combat Hovercraft being produced by Kinetics Inc., which makes the full-size craft as well as the models. See Boat Test photographs and story by W.H. Gebhart on page 26.

COLUMNS

RC POWERBOATS 6
Timber Carnival Regatta, by Jerry Dunlap

SHIP'S STORE 10
New product announcements

STRICTLY SAIL 22
One photo is worth 1,000 words, Rod Carr

IN HARM'S WAY 30
Protecting electronics, by Steve Milholland

RADIO WAVES 42
Computer radios have advantages, by Eloy Marez

PRODUCT SURVEYS

BOAT TEST: THUNDER TIGER 3.5CC OUTBOARD 12
New challenger in the outboard market, Jerry Dunlap

BOAT TEST: SK-5 U.S. ARMY COMBAT HOVERCRAFT 26
1/24-scale electric RC from Kinetics Inc., W.H. Gebhart

AIRTRONICS RADIO REVIEW 48
Our expert looks at the new "Exzes" system, Eloy Marez

PORT CALL

PHOTO TOUR OF THE U.S.S. MASSACHUSETTS 12
Historic battleship visited — SeaPhoto/Kurt Greiner

CONSTRUCTION

THE FRANKLIN-B RIVER WORK BOAT 16
Plans for scratch-building this boat, Joe E. Brown

FEATURES

SAN FRANCISCO CONCURS 32
Concurs, tugboat regatta in Bay Area, Kurt Greiner

A POWERFUL WARSHIP 42
A look at Soviet ASW Helicopter Carrier/Cruiser, Walter Musciano

THE TEXAS TRIPLE CROWN 58
The smashing defeat of the Texas Axis fleet in RC combat, Brian K. Craven

THE SOVIET KIEV 40
A Russian Aircraft Carrier, by Walter Musciano

U.S. BOAT & SHIP MODELER

WINTER 1995
VOLUME 9 / NUMBER 3 / ISSUE #35

CORPORATE OFFICE:
P.O. Box 2459
Capistrano Beach, CA 92624-0459
(714) 496-5411

PUBLISHER
Jack Lewis

ASSOCIATE PUBLISHER/ADVERTISING
Mark Thiffault

EDITOR
Bill Rice

ART DIRECTOR
Sonya Kaiser

ADVERTISING DIRECTOR
Robert W. Arsenault

ACCOUNTING MANAGER
Jim Lenhart

ART STAFF
Jerry Bassett

OFFICE STAFF
Kay Bastnagel
Jim Lenhart
Darrin Taplin
Connie Teepe
Brett Thiffault

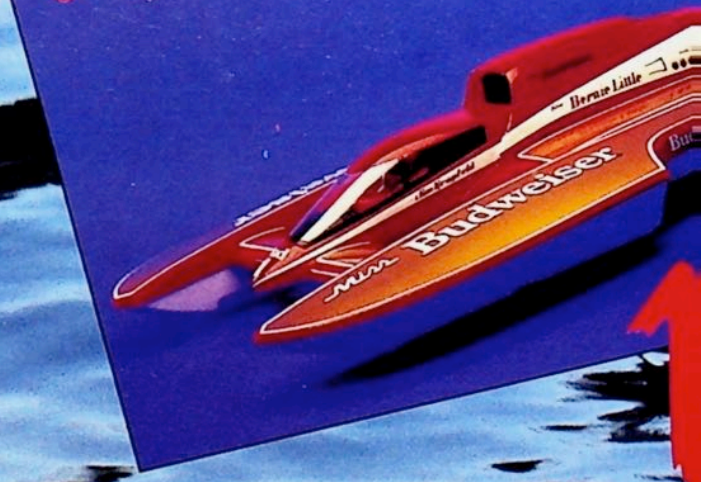
CONTRIBUTING EDITORS
Rod Carr
Ben Connor
Scottie Dayton
Jerry Dunlap
Phil Dyskow
W.H. Gebhart
Kurt Gebhart
Eloy Marez
Steve Milholland
Richard Young

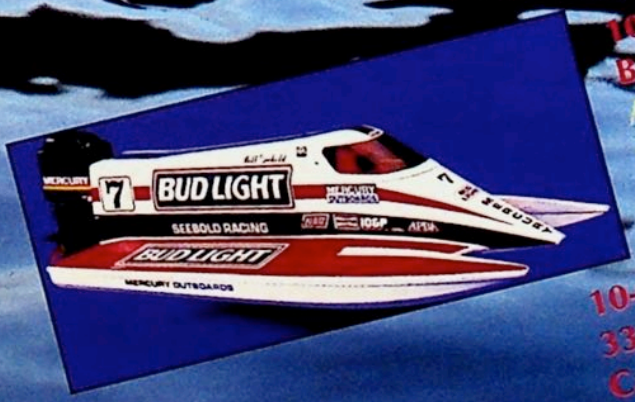
ADVERTISING
Mark Thiffault
714/496-5411

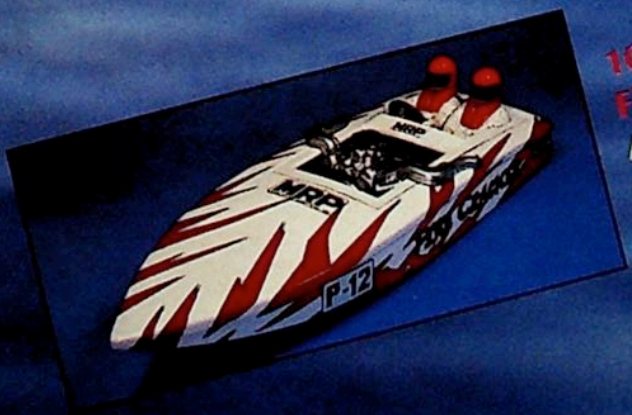
U.S. BOAT & SHIP MODELER (ISSN 0899 496X) is published quarterly by Gallant Models, Inc., 34249 Camino Capistrano, Capistrano Beach, CA 92624-0459. Phone: (714) 496-5411. Subscriptions in U.S. $14.00 for one year, $25.00 for two years. Single copies $5.75. Outside U.S. (except APO, EPO, FPO): Canada $20.00 one year, $37.00 two years; other foreign, $19.00 one year, $34.00 two years. All payments must be in U.S. funds. Copyright 1995 by Gallant Models, Inc. All rights reserved. Reproduction without permission prohibited. Change of address notices must be received six weeks before date of issue that new address takes effect. Send old addresses with new (old label preferred). Duplicate issues cannot be sent. Postmaster: send address changes to U.S. BOAT & SHIP MODELER, P.O. Box 2459, Capistrano Beach, CA 92624-0459. Second class postage paid at Dana Point, California, and additional offices. Made in U.S.A.

MEMBER RCHTA

Wet & W







10-1941
Bud Light Elec
Assembled wi
new molded

10-6001
33" Bud Dry Of
Catamaran
This assembled
water poundi
by combining
Offshore De

10-7001
Firecracker Del
APBA Crackerb
forward and re

10-5001
41" Fountain
Powered by
motor. This
handles ro
conditions

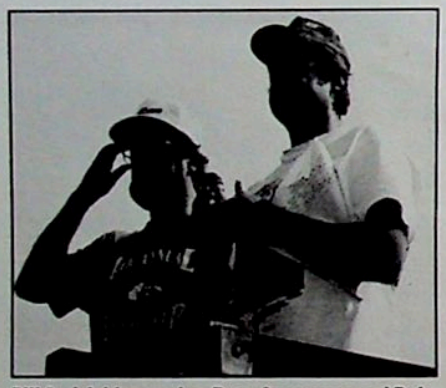
MRP
MODEL RACING PRODUCTS, INC.-USA

MODE
1594 S. AN
(714) 4

BY JERRY DUNLAP

TIMBER CARNIVAL REGATTA

THE FIRST weekend in July finds many of the nation's premier lumberjacks gathering in Albany, Oregon, for the Albany Timber Carnival. Timber Carnival participants compete in a variety of lumber industry skills, including chainsaw cutting, tree climbing, ax chopping and log rolling. Looking to add activities for Timber Carnival spectators to enjoy, the 1995 Timber Carnival contacted Emerald RC Boats of Eugene, Oregon, to explore the possibilities of using the log-rolling pond for a model boat race. Dale Remiro, president of Emerald RC Boats, served as Event Director and handled the necessary organizational functions to make the 1995 Timber Carnival/Regatta a reality.



Bill Amick (r) served as Race Announcer and Dale Remiro was the Contest Director.

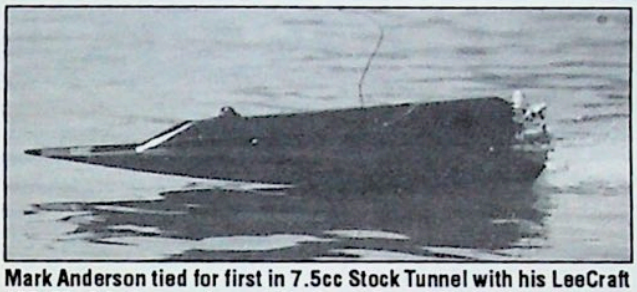
Emerald RC Boats trailer converts into Drivers' Platform.

Tunnel Boat Winners: Kneeling: Sam Maus, Jr., Mike Stern, Jerry Dunlap, Mike Mullarkey, and Gregg McKay. Standing: Phil Sherman, Rod Womack, Bill Berdzar, Jr., Mark Anderson, Paul Dunlap.

Hydro Winners: Kneeling: Mike Stern, Sam Maus, Jr., Dale Remiro. Standing: Phil Sherman, Pat Bristol, Bill Amick.

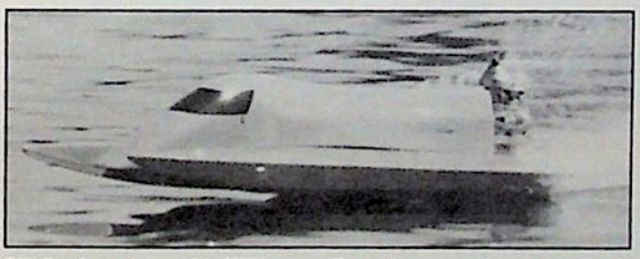
Even though this was initial attempt to conduct a model boat race in conjunction with the Timber Carnival, the event drew the interest of model boaters from Oregon, Washington and even Southern California. Making the trek northward from the Los Angeles area was the Maus Motorsports Racing Team consisting of Sam Maus, Jr., Sam Maus, Sr. and Mike Stern. Sam Maus, Jr. ,1994 APBA RC Boat Hall of Champions winner, competed in three classes and won two, 7.5cc Mod

Maus Motorsports was represented by (l-r): Sam Maus, Jr., Sam Maus, Sr. and Mike Stern.



Mark Anderson tied for first in 7.5cc Stock Tunnel with his LeeCraft 460. Mark is Commodore of the Puget Sound Model Boat Club.

Racing action in 7.5cc Stock Tunnel has Gregg McKay leading Mark Anderson and Bill Berdzar, Jr. to the starting line for the beginning of a heat.



Bill Berdzar, Jr. ran his Willamson Tunnel to second in 7.5cc Stock Tunnel.

Tunnel and 7.5cc Sport Hydro. Another APBA Hall of Champions winner, 1992 inductee Paul Dunlap, tied for first in the 7.5cc Stock Tunnel Class.

Emerald RC Boats members spend a few days prior to the July 1 race date in site preparation. The part of the log rolling pond designated for the model boat course had to be cleared of numerous lily pads growing in the pond. As a result of this backbreaking job, the racers were able to run on a clean race course.

As there was a 3 p.m. cutoff time, the Emerald RC Boats elected to offer a variety of class to represent the spectrum of model boat racing. Classes ranged from 3.5cc Stock Tunnel, an excellent entry-level model boat class, to the 1/8-scale Unlimited Hydroplane Class. Other classes offered were: 7.5cc Stock Tunnel, 7.5cc Mod Tunnel and 7.5cc Sport Hydro.

The eleven entries in 7.5cc Stock Tunnel led all classes. The class also offered the most even competition, as the final results showed Mark Anderson, driving a LeeCraft 40/60 Tunnel and Paul Dunlap, racing a Dunlap Prototype 40 Tunnel, tied for first place points. Because of the time limitation, it was not possible to stage a runoff between Mark and Paul and they were declared co-winners. Bill Berdzar, Jr. placed second with his Williamson Tunnel. It was a two-way tie for third, with Gregg McKay, Maus Champ 45, and Mike Mullarkey, Prather

RESULTS OF THE TIMBER CARNIVAL REGATTA

3.5cc Stock Tunnel

First — Jerry Dunlap, DPI 3.5 Tunnel
Second — Phil Sherman, Dumas Sprint
Third — Gregg McKay, DPI 3.5 Tunnel

7.5cc Stock Tunnel

First — (tie) Paul Dunlap, Dunlap Tunnel
First — (tie) Mark Anderson, LeeCraft 460
Second — Bill Berdzar, Jr., Williamson Tunnel
Third — (tie) Gregg McKay, Maus Champ 45
Third — (tie) Mike Mullarkey, Prather Lap Cat

7.5cc Mod Tunnel

First — Sam Maus, Jr., Maus Champ 45
Second — Mike Stern, Maus Champ 45
Third — Rod Womack, Aerotech

7.5cc Sport Hydro

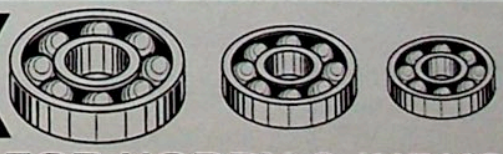
First — Sam Maus, Jr., Maus Scorpion
Second — Mike Stern, Maus Scorpion
Third — Dale Remiro, AC Pro Hydro

11cc Sport Hydro

First — Pat Bristol, Tosti Asti
Second — Phil Sherman, Miss Pay N' Pak
Third — Bill Amick, Thor Racing

SUPER LOW PRICES

BOCA BEARING



FAST DELIVERY ALWAYS

MINIATURE BEARINGS FOR HOBBY & INDUSTRY

For R/C Cars, Trucks, Boats, Planes, & Helicopters

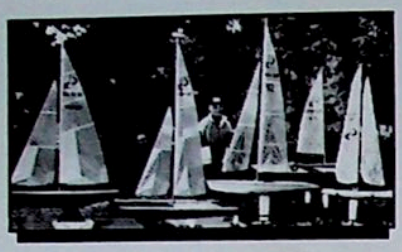
3 Complete Product Lines

Premium **Ultra-Seal** frictionless, sealed maintenance-free bearings
Econo-Power bearings, engineered for strength & durability
High-Speed high-heat engine bearings
• • • Standard US and Metric sizes • • •
Ask us about **MIDAS TOUCH** and Our Other Fine Products
Send $3.00 for Catalogs
— Dealer Programs Available —

We Have the Largest Inventory and Widest Selection – IN STOCK –

BOCA BEARING Co.

7040 W. Palmetto Park Rd., Suite 2304 G3, Boca Raton, FL 33433 Tel 407-998-0004 • Fax 407-998-0119
USA • CANADA • CALL TOLL FREE 800-332-3256 • CANADA • USA



DISCOUNT 25% ON THE PURCHASE OF THREE KITS. DISCOUNT 15% ON THE PURCHASE OF 2 KITS

The Pop Up model catamaran is the only high-performance sailboat in the world without any bizarre appendages: it rights itself by radio; cost $200 less: and is 12 inches longer. We have the AM's cup and Stars and Stripes 12 meter. These kits will give you the biggest and longest bang for the buck, and they'll become antiques. Complete line of corrosion-free hardware, radios, drum and arm winches. U.S.

Pop-Up Mfg.
27 Emerson Ave.
Amityville, NY 11701

(516) 842-9309. FAX (516) 842-6353.

Get 16 8x11" full size how to plans, color photos, prices and catalog. NY residents please add 8.5% sales tax. Use Visa, MC, AMEX, M.O. or check. Low U.S. & overseas shipping rates.

MOORE RACING FUN!
BOAT SOUTH

Distributor of Fine Quality Model Power Boats and Supplies

LeeCraft Tunnels Monos In Stock	Seaducer Monos Tunnels HTB + HVB In Stock	Road Runner Hydros Full Line In Stock

Unique Speciality Service

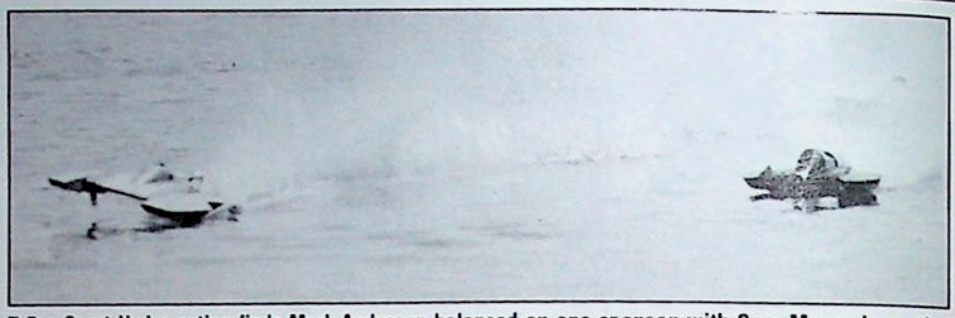
Any boat can be set up and ready to run, or set up at any stage.

MOTOR SERVICE AVAILABLE

Boats in stock are ready to race! We carry most items for RC powered boats.

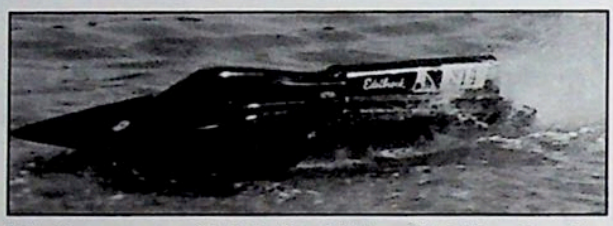
Cee Bee Marine	Prather
Avenger/Spiders	RPM
Aero Tech	Nova Rossi
Mongoose	Picco
Rossi/Speedmaster	CMB
PARTS	OPS
K & B	Mc Coy
Octura	Futuba/Etc.

BOAT SOUTH
Store Hours 8:am-8:pm Mon-Sat.
BECKY & TERRY MOORE
824 PINTAIL ROAD
KNOXVILLE, TN 37922
615-675-0806
UPS SAME DAY SHIPPING

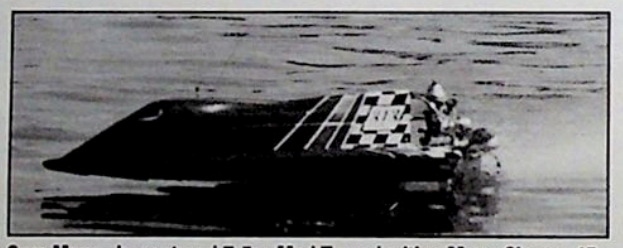


7.5cc Sport Hydro action finds Mark Anderson balanced on one sponson with Sam Maus, Jr. on the outside.

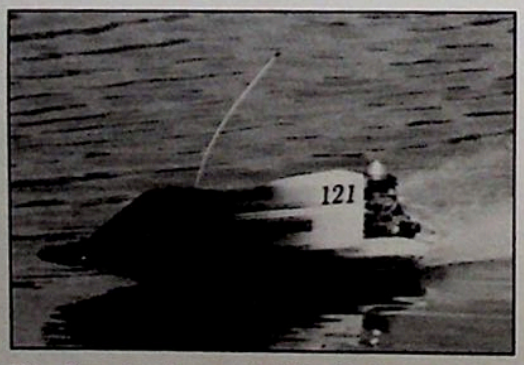
Sam Maus, Jr. won 7.5cc Sport Hydro with his Maus Motorsports Scorpion Hydro.



Mike Stern was second in 7.5cc Sport Hydro with his Maus Scorpion Hydro.



Sam Maus, Jr. captured 7.5cc Mod Tunnel with a Maus Champ 45.



Mike Stern placed second in 7.5cc Mod Tunnel with a Maus Champ 45.

Lap Cat.

Although not raced as a District 8 class, the 7.5cc Mod Tunnel Class drew the attention of the Northwest model boaters. The Maus Champ 45 Tunnel Boats belonging to Sam Maus, Jr. and Mike Stern put on quite a show, running tuned pipes on their K&B 7.5cc outboards. Sam took the class with three heat wins and Mike was second. Proving that finishing is important, Gregg McKay drove his stock 7.5 Maus Champ 45 to a third place tie with Rod Womack's Aerotech 40 Tunnel.

The Maus Motorsports Team also managed to sweep the first two places in 7.5cc Sport Hydro. Driving Picco 45-powered Maus Scorpion Hydros, Sam Maus, Jr. placed first and Mike Stern followed in second. Race Director, Dale Remiro, found time between keeping heats on the water to place third with his AC Pro Sport Hydro. 1994 APBA 7.5cc Sport Hydro National Champion, Mark Anderson, managed to win two heats, but didn't finish a couple of heats. In one heat, Mark managed to snag some rope during the mill, ending the race before it ever started.

Although only five 1/8 Unlimiteds found their way to the Hot Pit starting tables, this class always creates spectator interest. Pat Bristol drove a model of the Tosti Asti to first place. Phil Sherman's Pay N' Pak found its way into second place. Third place went to race day announcer, Bill Amick. Bill might have placed even higher had he not taken an extended break between rounds two and three and missed the third round.

Although it sounds a little far-fetched, Bill claims he was practicing for the log rolling event to be held the next day. However, the report that Bill climbed into the back of his van and was "sawing logs" seems more probable.

Hopefully, the success of the initial Timber Carnival Model Boat Regatta will mark the beginning of a regularly scheduled event. Congratulations to Emerald RC Boats for sponsoring a model boating event that exceeded everyone's expectations. ***USB***

U.S. BOAT & SHIP MODELER

- Superior Editorial Content
- Finest and Most Complete Boating Articles
- New Products
- Product Reviews
- Race and Show Coverage
- Regular Columns on Electronics, RC Powerboats, Sailboats, RC Warship Combat, Tugboats

Canada subscriptions $20 for one year, $37 for two years, inc. GST. Other foreign, $19 for one year, $34 for two years inc. postage. All payments in U.S. funds drawn on U.S. Bank.

❑ New ❑ Renewal

Name_____

Address_____

City_____

State_____ Zip_____

❑ $14 for one year (4 issues)

❑ $25.00 for two years (8 issues)

MC/Visa/Discover

#_____

Exp. Date_____

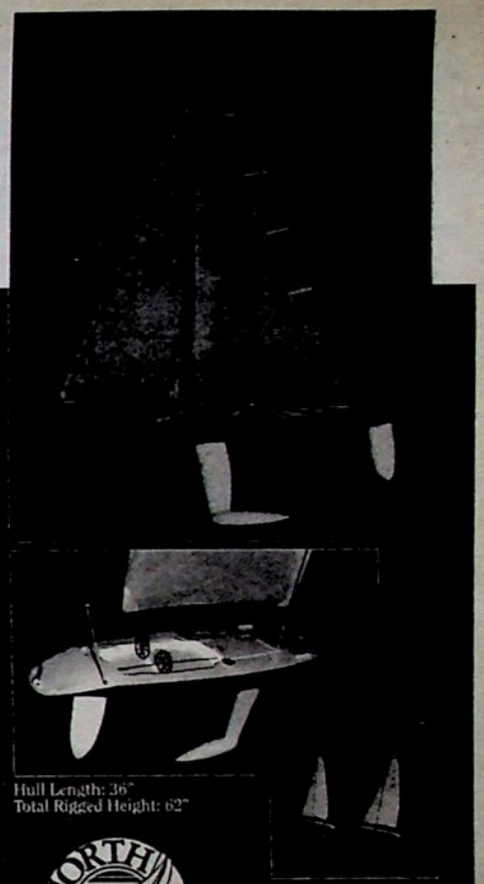
Signature_____

U.S. BOAT & SHIP MODELER
P.O. Box 2459
Capistrano Beach, CA 92624-0459

New Class!

CR-914

Easy to Build, Fun to Sail, No Better way to Get Started!



Molded one-Piece Hull & Deck Component

Rip Stop Nylon Precut & Shaped Sails

Precast Lead

Molded, Foil Shaped Keel & Rudder

Aluminum Mast & Booms

Designed for Easy Transporting

Full Radio & Electronics Package Included

21 Frequency Choices

Boat Stand & Epoxy Included

Hull Length: 36"
Total Rigged Height: 62"

NORTH MARINE

Come Visit Us at:
80 Washington Street
Marblehead, MA 01945
Telephone: 617-639-1835
Open Year 'Round

Call us with all your model boat needs. If we don't have it, we will find it.

THE SCALE SHIPYARD (WARSHIP HULLS UNLIMITED)

FOR THE SCALE SHIPMODELER WHO EXPECTS THE BEST

The leader in accurate true scale warship hulls and accessories is offering hand-laid matt and cloth one-piece fiberglass hulls for the static and R/C model shipbuilder. Hulls and accessories are available for World War II through modern warships, commercial vessels and tugs.

USS MASSACHUSETTS BB-59
1/8" 85" LOA WITH 5 PIECE SUPER-STRUCTURE MOLDING & PLANS.

USS ARIZONA BB-39
1/8" SCALE, 76" LONG, WITH PLANS.

USS OLIVER HAZARD PERRY FFG-7
1/8" SCALE 55-1/2" LOA WITH PLANS.

USS TICONDEROGA CG-47 CLASS
1/8" SCALE 70-7/8" LOA WITH PLANS.

U-505 TYPE IX C GERMAN U-BOAT
1:48 SCALE 63" LOA WITH CONNING TOWER, PLANS, DIVEPLANES & RUDDERS.

USS LOS ANGELES SSN-688
1:96 SCALE, 45" LONG, 4-1/8" BEAM
1:48 SCALE, 90" LONG, 8-1/4" BEAM
HULL, SAIL, PLANS, AND DIVEPLANES.

Send $6.00 for new Catalog
Listing Fittings and Over 100 Fiberglass Model Ship Hulls

CREDIT CARDS ACCEPTED
MINIMUM CHARGE $50.00

THE SCALE SHIPYARD
DEPT. B
5866 ORANGE AVE. #3
LONG BEACH, CA 90805-4146

MODEL BY CHARLES GALLIGAN

USS WASHINGTON BB-56 AS IN LATE 1943.
BUILT USING OUR HULL, SUPERSTRUCTURE, GUNS, AND FITTINGS. 1/8" SCALE, 91" LONG, 13-1/2" BEAM.

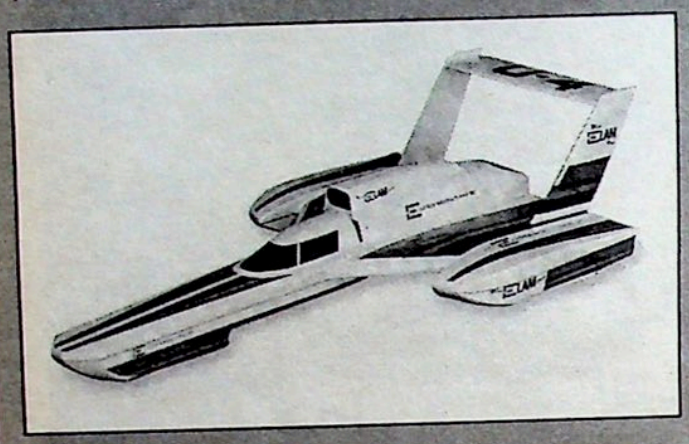
NEW YORK HARBOR TUG "CAROL MORAN"
1:48 SCALE, 27-1/2" LONG, 7-1/4" BEAM.

SHIPS STORE

BY BILL RICE

1/16 SCALE HYDRO

The Miss Elam PLus is a 1/16 scale four-point hydroplane that is modeled after the boat which campaigned the Unlimited Class hydroplane circuit in 1994. It is a fast (30+ out of the box), sleek and maneuverable model for the novice or expert. The model includes all running hardware (Octura brass prop, 15-turn modified motor, etc.). Completion time is estimated at six hours. Specifications: 21" length, 12.5" beam, 3.6 pounds, two-channel radio required. From Kinetics, P.O. Box 1071, Mercer Island, WA 96040; (206) 641-5611.



HOT NEW POWER PACK

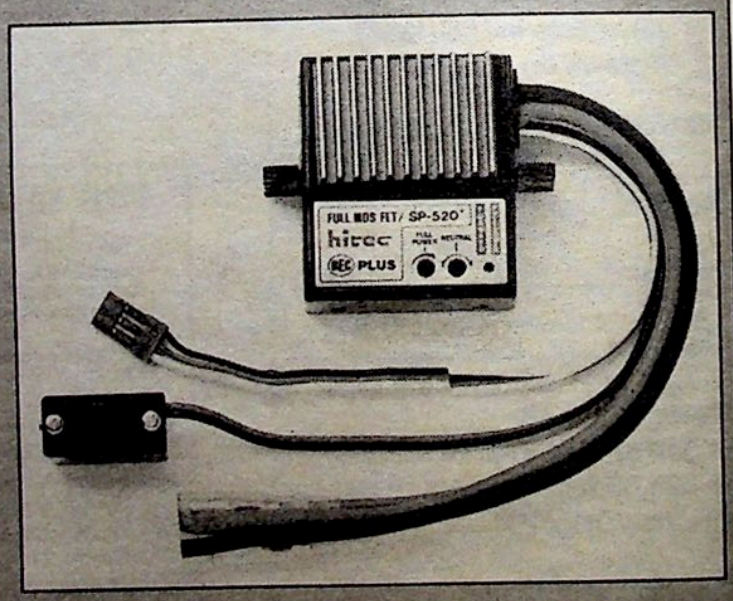
Dynamite's new Super Sport 1800 pack offers great run time, using Sanyo's newly Before release, Dynamite packs are examined at the factory and their average must exceed the desired capacity (1800 mAH or 648 seconds at 10 amps) before the cells go into the product and are given a mAH rating. Then, approximately every 3-4 months, new production packs off the shelf are tested to recheck capacity. In the case of the new 1800 packs, average cell capacity tested at 1820 mAH, while typical voltages were 1.15 volts per cell. The packs feature quadruple welded tab construction for reducted resistance and greater reliability. Super-flex 14 awg silicone wire is used. Distributed by Horizon Hobby Distributors, 4105 Fieldstone Rd., Champaign, IL 61821; (217) 355-9511.

A YACHT

[illegible] model yacht [illegible] length, with a beam of 12-7/8 inches. A one-piece removable fiberglass keel, rudder and choice of two deck designs in fiberglass are optional. Full-sized building plan and a manual area sent with the hull. This yacht has now been certified to conform with AMYA sailboat specifications. Full details on this yacht, as well as three other sailing yacht designs and seven scale boat and ship designs with fiberglass hulls are available from Dwight Hartman Fiberglass, Box 86, 233 Melrose St., Argenta, IL 62501; (217) 795-2275.

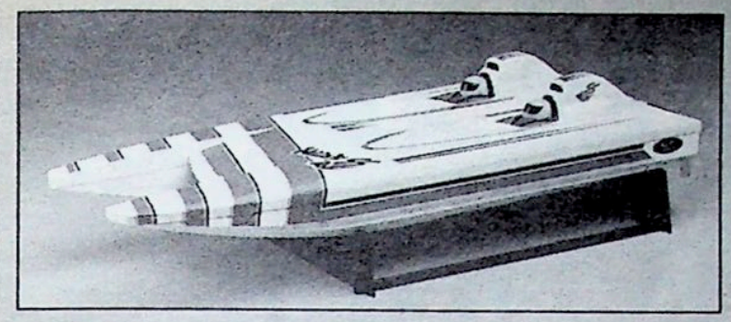
HITEC'S SP-520 PLUS

The SP-520 Plus is a two-way fully proportional speed control that comes with BEC (at 5.6V) and a polarity protection circuit which protects the circuits from destruction if accidentally connected backwards. The SP-520 has "tempfet" protection to heat build-up acting like a circuit breaker, cutting off the system temporarily, resuming operation when it cools down, extra low voltage drop by using high grade MOSFETs. Maximum forward current is 560A, continuous 145A, current drain of 0.125 ohm. The speed control is also available in a version w/high output MOSFETs (SP-560 Power). From Hitec RCD Inc., 10729 Wheatlands Ave., Suite C, Santee, CA 92071.

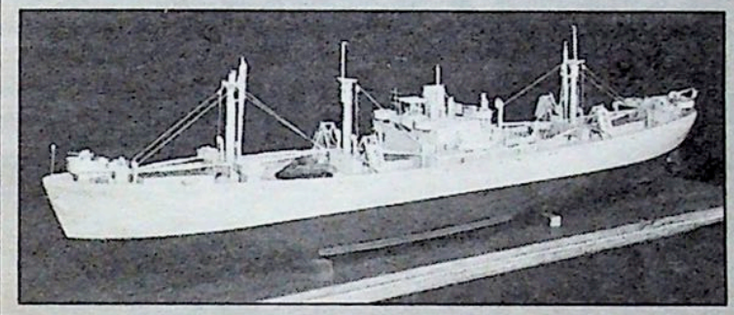


SWIFT CATAMARAN

Beginning and veteran RC modelers will like the stylish look and high performance of the Wildcat Super Sport. Its twinline drive system unites



the power of two Thrustmaster 550-size motors for maximum speed and run times. The catamaran hull is easy to handle



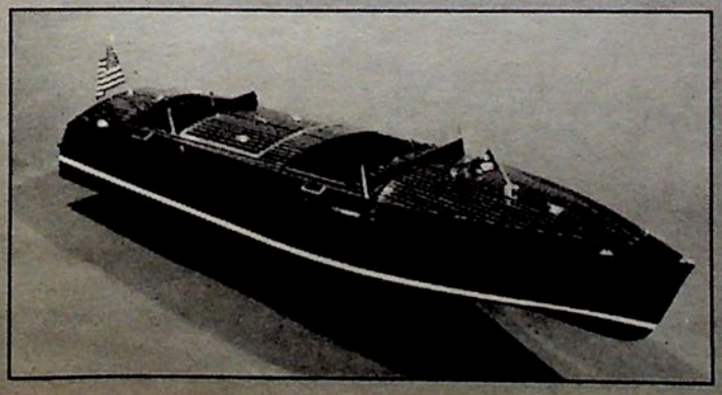
at top speeds. The molded-in lengthwise strakes keep the boat running at the right attitude through the quickest turns and fastest straights. The hull and deck come prejoined, with the motors and radio box already installed. The boat specs are 25.75 inch length, 10.25 beam, 1.5 in. prop, two Thrustmaster 550-size motors. Requires two-channel radio, two 7.2V or 8.4V batteries and charger. Distributed by Great Planes Model Manufacturing Co., 2904 Research Rd., Champaign, IL 61826-9021.

SCALE MODELS

The Los Angeles Maritime Museum has released two more limited edition scale models — a WWII Liberty Ship and a Bluenose Fishing Schooner. These collectibles, built by master model builder John Pignatelli, are museum quality kits and fittings, and models are signed, numbered and certified by the museum. Other ships available in the series include 1/16-scale U.S.S. Missouri, 1/4-scale Britannia sidewheeler, 1/16-scale Queen Mary, 1/16-scale Titanic, 1/8-scale WWII patrol frigate and 1/100-scale Nimitz hull. For a complete catalog of models available, contact L.A. Maritime Museum, Berth 84, San Pedro, CA 90731; (310) 548-7618.

MAHOGANY RUNABOUT

The mahogany runabout is an elegant model of a typical speedboat in the 30s and 40s. This kit model from The Laughing Whale reproduces the construction methods used to build these classic wooden boats — using double diagonal and horizontal planking. Laser-cut parts, brass and cast Britannia pewter fittings, cast resin upholstered seats and a detailed instruction book make it easy to cruise your own waterway. The Mahogany Runabout kit #203 includes all the materials needed for static display. Radio gear and running hardware are not included, but instructions include a suggested hardware configuration for the modeler. Scale: 1"=1' (1/12). Length 30 inches. From BlueJacket Ship Crafters, P.O. Box 425, Stockton Springs, ME 04981.

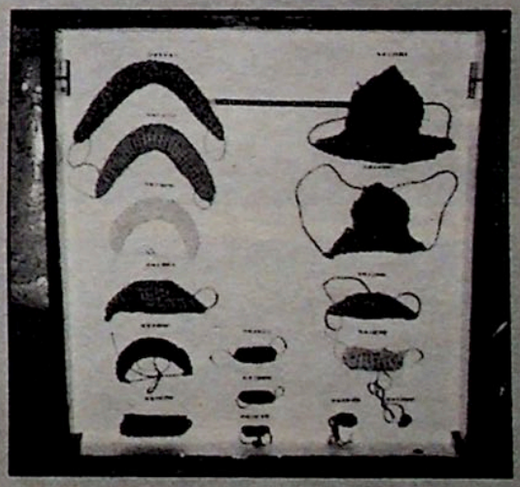


DUNLAP CRACKERBOX

USB&SM writer Jerry Dunlap is offering a plywood kit of his 1/8 scale Crackerbox. Developed for pull start 12 motors, the kit features aircraft grade 1/8" plywood for frames, 1/32" plywood sheeting and spruce stringers. Needed to complete the 1/8 scale Crackerbox are two-channel radio, pull start 12 motor, fuel tank and running hardware. Octura Models has a complete line of hardware for 12 size model applications. Kit is $189.95 plus $7 S&H, from Jerry Dunlap Model Boats, 119 Crestwood Dr. S.W., Tacoma, WA 98498.

BUMPERS AND FENDERS

Model boat fitting items often overlooked are the fiber bow bumpers and side fenders as seen on vintage tugboat models. If featured at all, they have been painstakingly hand made by the builder. Ships N' Things Inc., long known as a source of rare fittings, has as one of their new presentations a line of hemp bow bumpers and side fenders. They are available in a variety of popular sizes and can also be custom made to suit the individual moderler's requirements. From Ships N' Things, P.O. Box 605, Somerville, NJ 08876-0605. *USB*

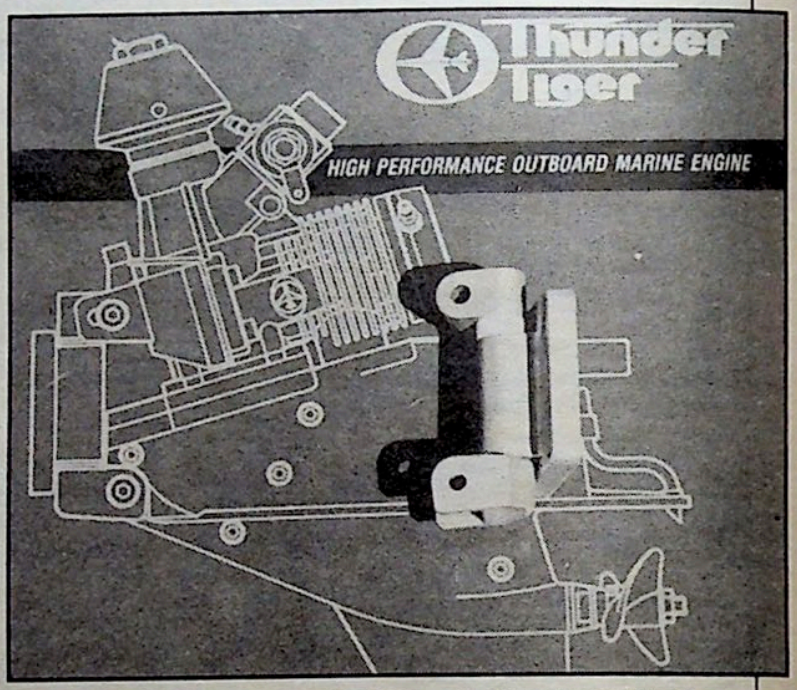


All material published in *SHIP'S STORE* is quoted or paraphrased from press releases, furnished by the manufacturer and/or their advertising agencies, unless otherwise specified. The review and/or description of any product by *USB&SM* does not constitute an endorsement of that product, nor any any assurance as to its safety or performance.

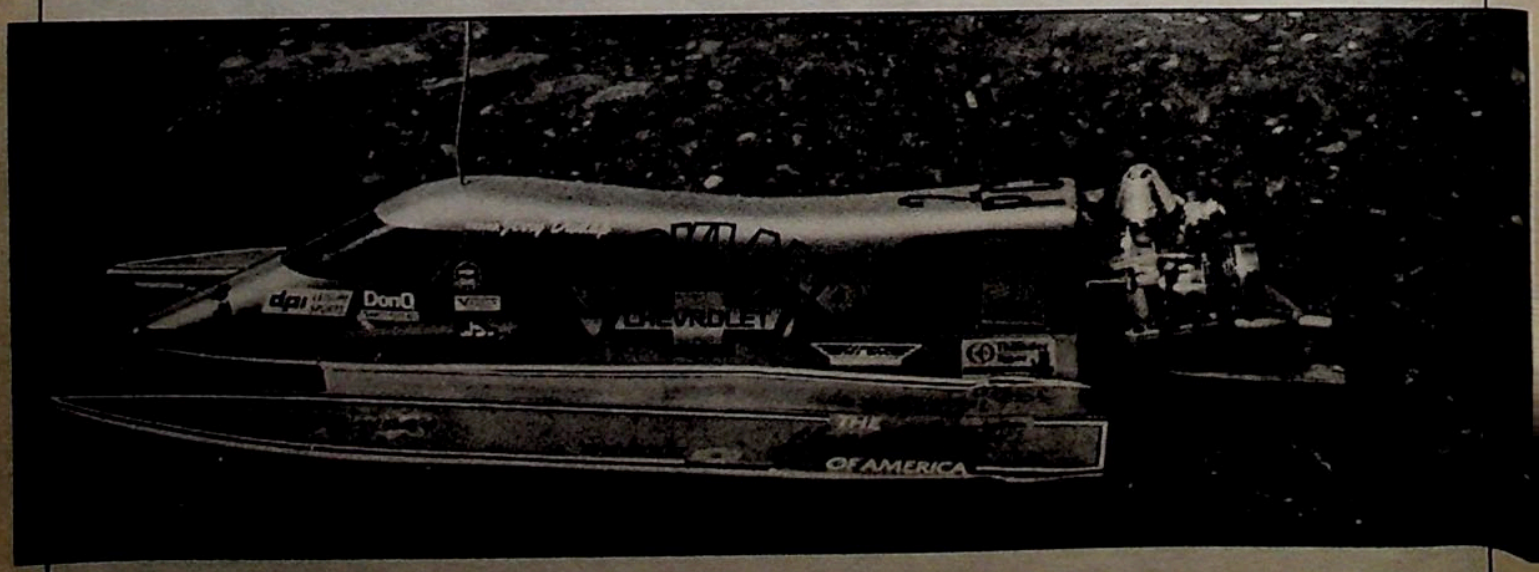
BOAT TEST

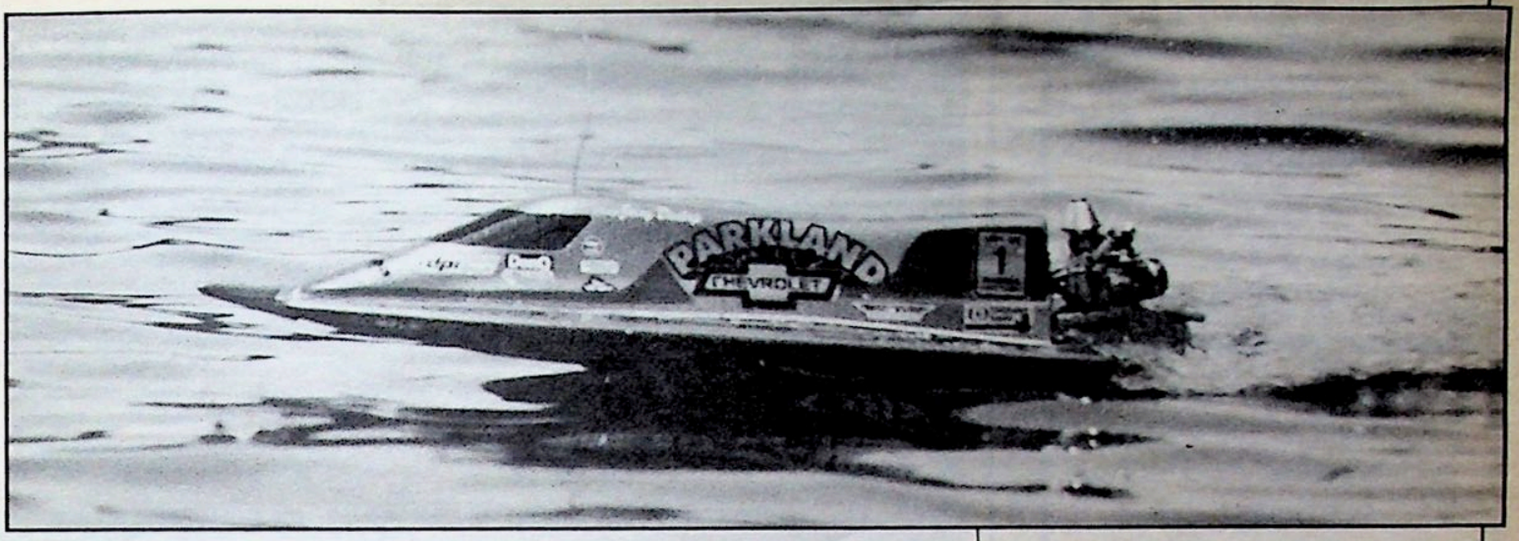
BY JERRY DUNLAP

THUNDER TIGER 3.5CC OUTBOARD



■ LEFT: Powerhead for the Thunder Tiger 3.5cc outboard. ■ ABOVE: Mounting plate and adjustable motor mount. ■ BELOW: The Thunder Tiger 3.5cc outboard is mounted on the DPI 3.5 Tunnel reviewed in Fall 1995 issue of U.S. Boat & Ship.





The following statement appeared in the review of the DPI 3.5cc tunnel I wrote for the Fall Issue of *U.S. Boat & Ship* regarding the K&B 3.5 Outboard engine: "I find it hard to believe that next year will mark the 20th anniversary of this very successful model marine engine. Another thing I find hard to believe is no other major model marine engine manufacturer has chosen to introduce a line of model outboards."

Well, after 20 years of having only one manufacturer of a 3.5cc outboard motor available to the model outboard enthusiast, there is now a challenger to K&B Manufacturing's 3.5cc outboard — the Thunder Tiger 3.5cc outboard engine.

I first saw the Thunder Tiger 3.5cc at the Toledo Model Show in early April of 1994. At the time, I tried talking (actually serious arm twisting) Bill Geric, Thunder Tiger USA's national sales manager, into allowing me to try the engine. The engine was still undergoing development at the time. Bill assured me I'd get an opportunity to try the engine, once it was ready for production. The engine was finally released this summer and Bill sent me an engine to try on my tunnel boat.

If first appearances count for anything, the Thunder Tiger 3.5cc rates high. With its blue anodized water cooled head, slant mounted powerhead and beautiful castings for engine case and lower unit, outboard is visually exciting. The tooling process used to produce this engine produces an nice looking product. However, good looks doesn't necessarily guarantee good performance. In the area of transmitting power from engine to propeller, the Thunder Tiger uses a dual approach with gears and cable drive. There is a spur gear attached to the output shaft and a bevel gear in the lower unit. The flex cable is keyed into the lower unit bevel gear. The gear reduction ratio on the motor I received is 1:04.1.

The lower unit of the 3.5cc incorporates a large expansion chamber. There is divider baffle running down the expansion chamber that routes exhaust down the chamber and then back up the lower unit to the exhaust outlet. I don't know if the expansion chamber lower unit increases power like a tuned pipe, but I do know it decreases the sound a considerable amount. The very first thing I noticed upon starting the Thunder Tiger 3.5cc outboard was the sound level is considerably below that of a K&B 3.5cc outboard.

Now, a real motor reviewer (RMR) would tell you the exact difference in dBs between a Thunder Tiger and K&B when both are operating at full throttle. He would have a dB meter and probably some real fancy instruments to measure rpm, horsepower and torque. I've never considered myself an RMR.

I've read those motor reviews and I must admit, I've been impressed with their facts and findings displayed, numerically in charts and graphs. I've always thought the photos of the motor disassembled was interesting. I even included some photos of the Thunder Tiger 3.5cc outboard sorta disassembled. But after reading what the RMRers had to say, I'm always left with the same question, "How would this motor work on my boat?"

The Thunder Tiger comes with an adjustable motor mount incorporating four one-millimeter nylon washers used as spacers. The motor mount insert can also be flipped to increase or decrease the prop depth setting. The problem with both of these methods of increasing or decreasing the prop depth setting is they require disassembling the motor mount. The hinge plate assembly that mounts to the transom comes with four mounting holes drilled in the corners of the plate. I elected to slot the plate to allow for faster adjustment of prop depth. I first drilled holes in the plate and used my Dremel MotoTool with a carbon cutter bit to create the slots. It takes a little time to do this, but I believe it is worth the time and effort since it greatly eases making vertical adjustments of prop depth. A photo of the motor mount plate shows the modification.

In order to secure the throttle linkage to the motor, I fabricated a bracket from brass sheeting. The top of the bracket is formed to allow the throttle linkage housing to slip through and the bottom of the bracket is drilled the same size as the hinge plate adjustment bolts. The throttle linkage bracket is attached to the engine by the top bolt and nut on the hinge plate. Du-Bro Products makes an aluminum bracket for securing the throttle linkage to an outboard motor that could also be used.

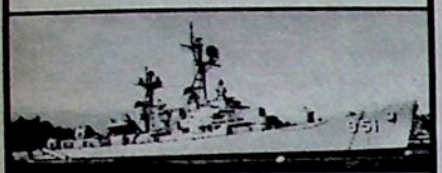
The spacing of the mounting holes (or in my case slots) on the hinge plate is not as wide as the Du-Bro Motor Mount previously used on my 3.5cc Tunnel. It was necessary to drill and tap four new holes in the aluminum motor mount plate in my Tunnel. Mounting the Thunder Tiger on a Dumas 3.5cc ABS Sprint might require making some type of an adapter plate. The transom of the Dumas is fitted with screw-in type nuts spaced for the Du-Bro Motor Mount. It might be possible to re-drill the holes in the ABS Sprint for the screw-in nuts. However, the holes needed for the screw-in bolts use considerable space on the transom.

All right now, with the Thunder Tiger 3.5cc outboard mounted on the transom of my Tunnel, and the throttle linkage connected, we're ready to head out to the pond to try out the new motor. My wife, Maren, drove the boat while I took running photos. The operating instructions recommend a low nitro fuel for break-in. I had some 5% Byron's available and elected to use this for the initial running of the motor.

The Thunder Tiger 3.5cc outboard comes with a Prather S-15 propeller that I elected to use during the first running of

SeaPhoto

Offering detailed photo sets for the modeler and enthusiast

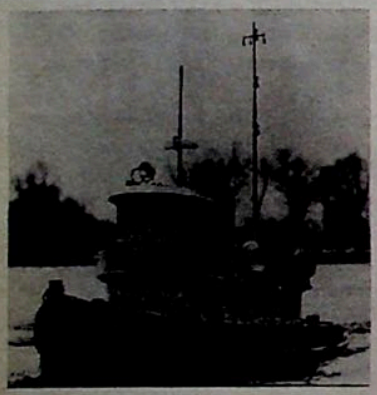


Naval - Modern Warships as well as preserved vessels. Also foreign warships.
Civilian - Tugs, merchant ships etc.

For our catalog #1 send $5 ($8 overseas) to:

SeaPhoto,
Dept.1, 1145 Oakwood Dr.,
Millbrae, CA 94030

We get the details!



Complete fibreglass kit for this 42" Harbor Tug model. Classic lines of the Tugboat in a good sized model for electric or steam power. Model weighs 33 lbs. & features a fibreglass hull, deck and superstructure parts. Full sized plans and many optional parts available. We also build 10 other kits. Two versions of the historical Delta Queen in 1/50th scale, an Atlantic coast sea going Bunker fishing boat 61" long, a 50" long 1/96th scale C-2 cargo ship hull, 3 classes of AMYA sailing yachts, a quarter scale 61" Charger Express Cruiser which is powered with a Tecumseh gas snow blower engine and our latest design is the 20" Lil Toot Tugboat with a fibreglass hull and plans for building a wood deck and cabins. Boat Video for sale of the running of many of these models and runs just under 2 hours. This Video tape $10.00 postpaid. Please send $4.00 for our 16 page catalog with 80 color photos, prices and full details of all these boats by first class mail. We have been in the fibreglass model business since 1962.

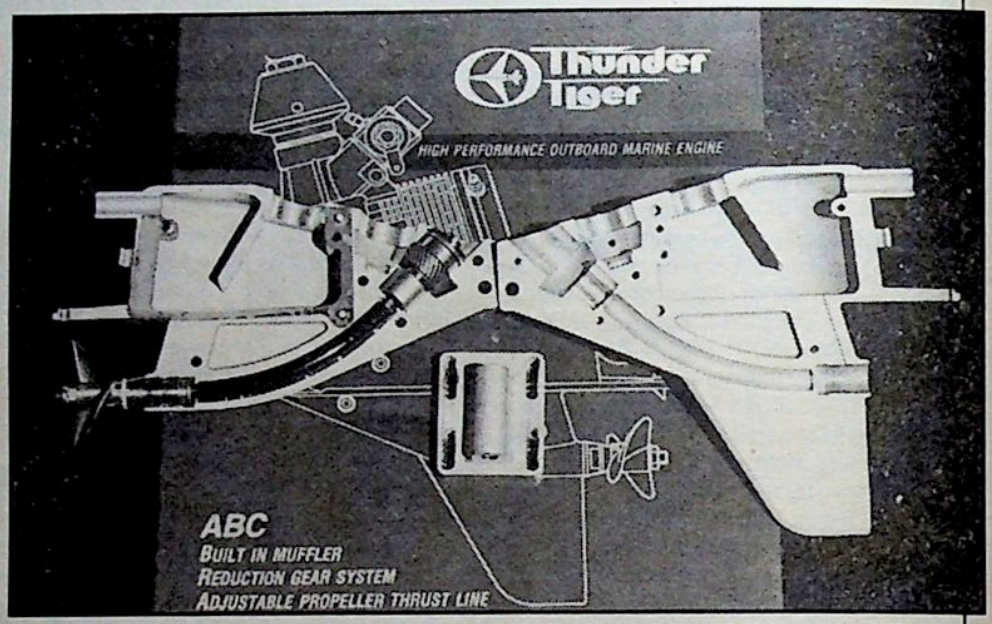
HARTMAN FIBREGLASS R/C
Box 86, Dept. US
Argenta, IL 62501. Phone (217) 795-2275

the motor. The balance of any propeller should be checked prior to running. An out-of-balance propeller can damage the prop shaft assembly.

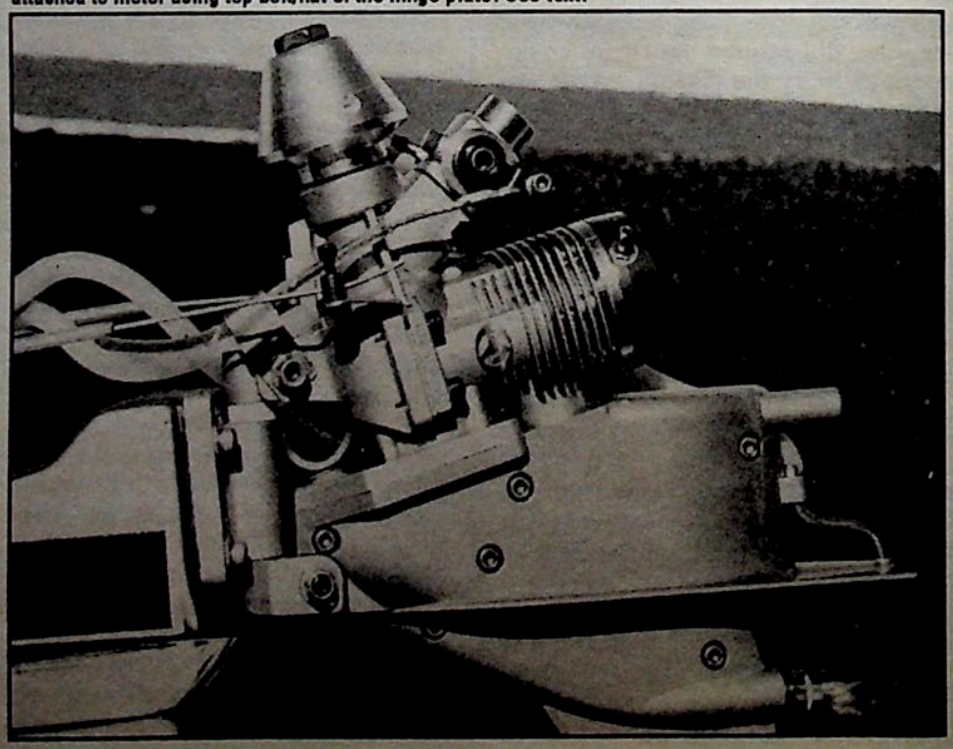
When the electric starter was applied to the flywheel, the engine quickly came to life. The needle-valve was adjusted for a "rich" setting and the boat released from the beach. While I was running the engine on this first outing, Maren mentioned the lower sound level the Thunder Tiger produced. While testing the engine on another occasion, I could actually hear the sound of the water hitting off the boat. The only other time I hear the sound of the boat running on the water is when I'm running an electric boat. I'm very pleased to see a stock motor that operates well below the sound levels set by two of the three national model boating organizations.

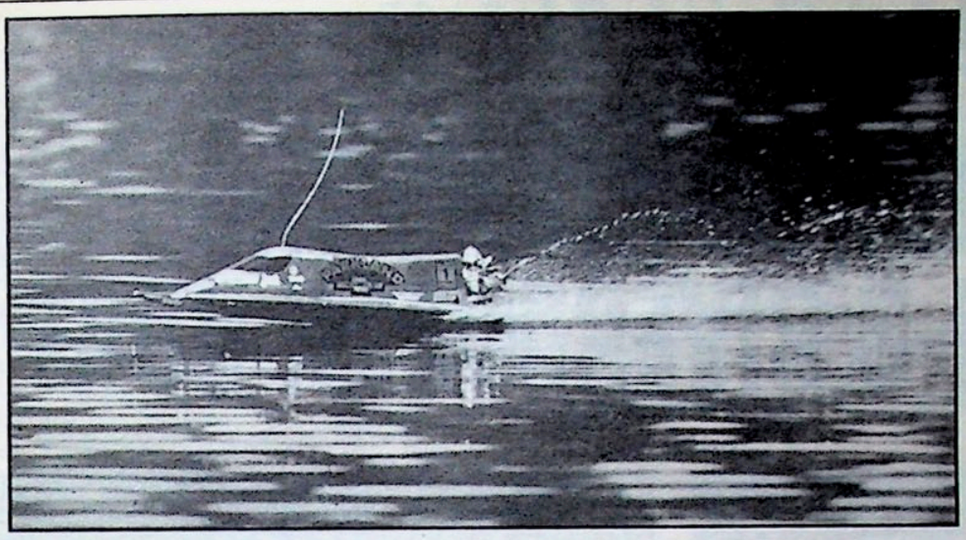
For its first two runs, the needle-valve setting was fairly rich and two six-ounce tanks were run through the engine. During the second run, Maren took control of the transmitter, while I manned the camera. The wind started to pick up causing the water to get somewhat choppy. The running shots were taken with the boat only running about half throttle. A third and final run was made after adjusting the needle-valve for better engine performance. For only running 5% nitro fuel, the Thunder Tiger 3.5cc ran very well on this first outing.

I decided to disassemble the engine



■ **ABOVE: The lower unit of the Thunder Tiger 3.5cc outboard with gear-flex cable drive system. Motor mount plate has been slotted for faster prop height adjustments. ■ BELOW: Throttle cable bracket is attached to motor using top bolt/nut of the hinge plate. See text.**





The Thunder Tiger 3.5cc outboard in action.

after returning from the first test session to check out the lower unit. Close examination of the housing around the gears showed a small amount of powered metal I imagine was created by the meshing of the gears. The gear housing was flushed with WD 40 and the gears greased with Lubriplate. The flex shaft was removed from the flex shaft guide and greased. A few photos of the disassembled lower unit were taken before it was reassembled.

Now that the Thunder Tiger had been through a break-in period, it was time to get serious about performance. Yes, the engine had an excellent appearance, started easily and created less sound than the competition. But what I really wanted to know is: Would it run as well as the competition?

One way to compare the outboard to the competition is to attempt to set up two identical boats. I had two DPI 3.5 Tunnels available for just such a comparison. The K&B 3.5cc outboard had been raced successfully in several races. The Thunder Tiger outboard had been tested extensively using different props and prop depth settings. After considerable testing, it appeared an Octura X-438 propeller with a prop shaft center line 7116 above the bottom of the sponsons riding edge provided a fast, smooth ride. This is really a high prop setting, but it worked on this boat. Byron's 60% Racing Fuel was used in both fuel tanks.

The opportunity to test the two motors against one another occurred during a test session following a Puget Sound Model Boat Club fast electric race. Both boats were tuned to what seemed to be their best performance capabilities. Bruce Mooring, a fellow member of the club and 1995 APBA National Champion in 12-cell Open Sport Hydro, agreed to drive my K&B-powered Tunnel, while I drove the Thunder Tiger-powered version.

The boats were driven side-by-side at full throttle around the pond. On this particular day, with the setups on each boat seeming providing top performance, I was able to slightly pull away from the other boat. Does this mean the stock Thunder Tiger outboard will out-perform the stock K&B? I'm not prepared to make such a judgment based on just one day of running side-by-side at the pond. There are many variables that affect a boat/engine combination. Since receiving the Thunder Tiger 3.5cc outboard, I had exclusively worked on tuning and trimming the boat to which it is attached. Had I devoted the same amount of time to the K&B powered hull, the results might have been completely different. Something I will be doing during the second half of our District 8 Championship Series is competing against K&B 3.5cc outboards in heat racing. The motor is still unproved in a racing environment.

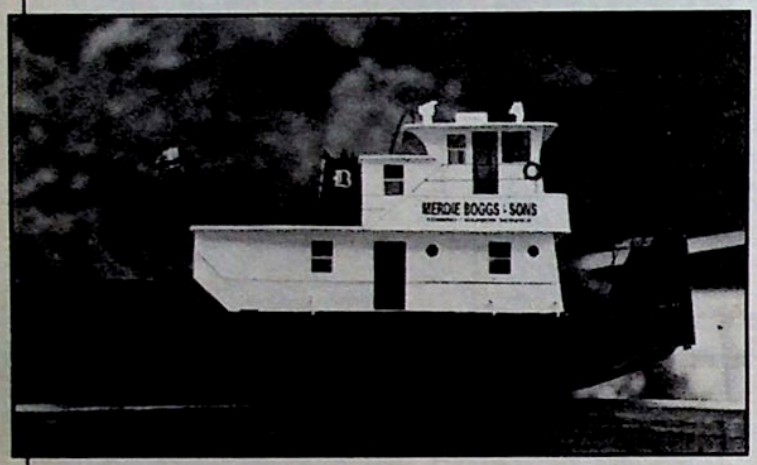
I do feel the Thunder Tiger has the potential to become a competitive model outboard powerplant. The K&B has evolved considerably since it was introduced 20 years ago. The Thunder Tiger offers the model outboard enthusiast a well crafted engine with a sound abatement lower unit much needed in our hobby. The adjustable motor mount eliminates the need to purchase an after market motor mount. With a little work, the adjustable motor mount can be turned into an excellent adjustment device. For many model boating applications, the propeller included with the motor will work fine.

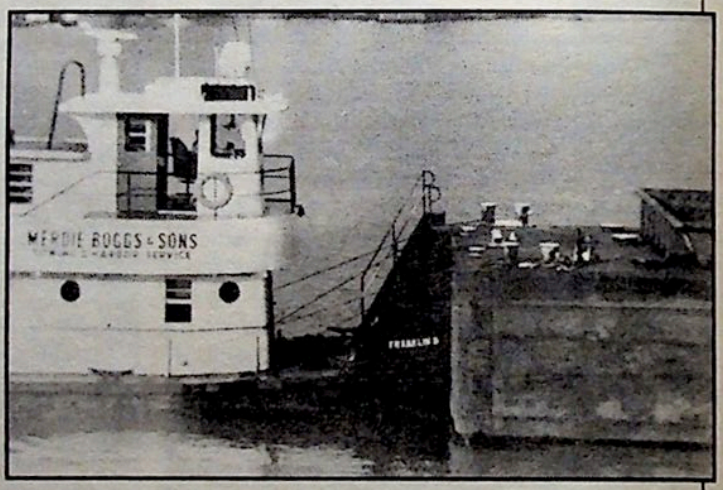
Thunder Tiger 3.5cc outboards are available through hobby shops. I would like to thank Bill Geric of Thunder Tiger USA for allowing me to evaluate the newest 3.5cc outboard available for model boaters. ***USB***

CONSTRUCTION

BY JOE E. BROWN

SCRATCH BUILDING THE FRANKLIN-B RIVER WORK BOAT





■ ABOVE: Starboard profile of the Franklin-B River Work Boat. ■ ABOVE RIGHT: The bow of the Franklin-B "dives" from the power of the engines. If a pilot is not careful, he can submerge the bow and swamp the boat. ■ RIGHT: The Franklin-B is "faced up" to an empty barge.

FOR THOSE of you who are interested in work boats on the inland rivers, here is a popular harbor towboat. Though most rivermen call them harbor tugs, they are not designed for work in deep water around the Gulf region. The *Franklin-B* was a challenging project, yet easy enough for the novice to build. I am going to aim this project toward the novice, in hopes that more modelers will try their hand at scratch-building. Before we begin, let's get some information on the prototype.

The *MV. Franklin-B* was built in 1961 by Yates Marine Construction of Wheeling, West Virginia, and Catlettsburg, Kentucky. She is 59 feet long and 20 feet wide, has a waterline draft of 6 1/2 feet, is powered by two Caterpillar D353 diesel engines rated at 720 horsepower and is owned by Merdie Boggs & Sons of Catlettsburg, Kentucky.

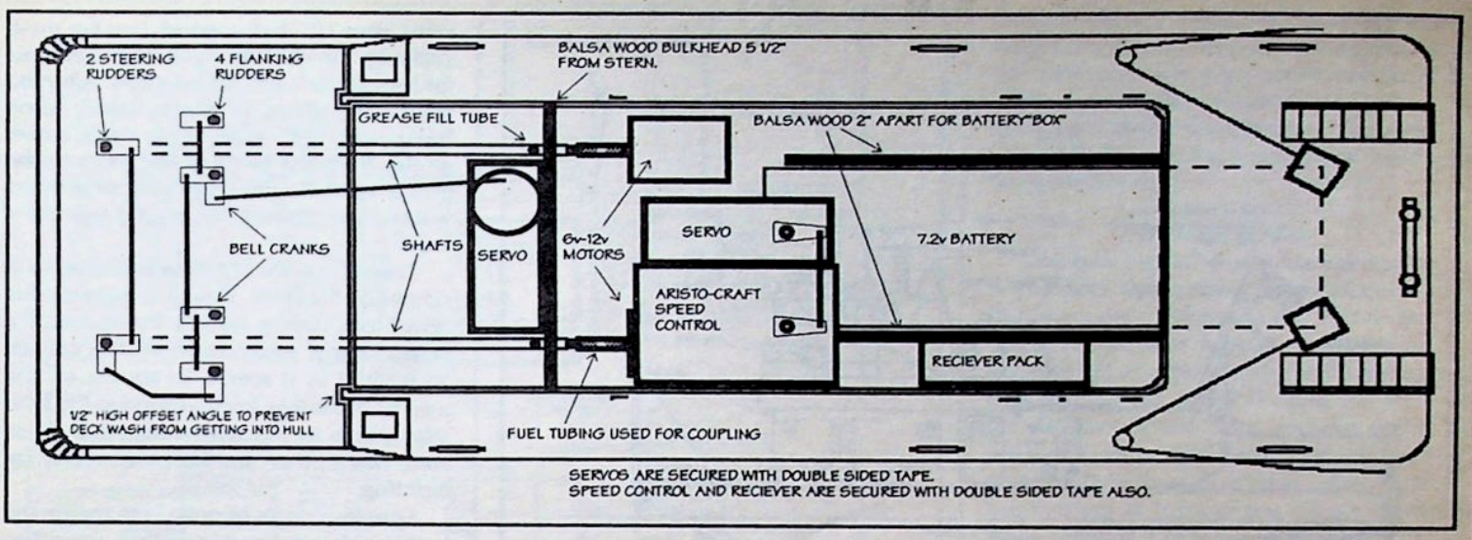
BUILDING THE HULL

The scale I will be building in is 1:48 (1/4"=1'). I build in this scale so my barges will be a comfortable size to handle. Standard size barges are 195 feet long. In 1/4"-scale, that is slightly over four feet. A more popular scale is 1:32 (3/8"=1'). The model *Franklin-B* measures 14-3/4x5 inches.

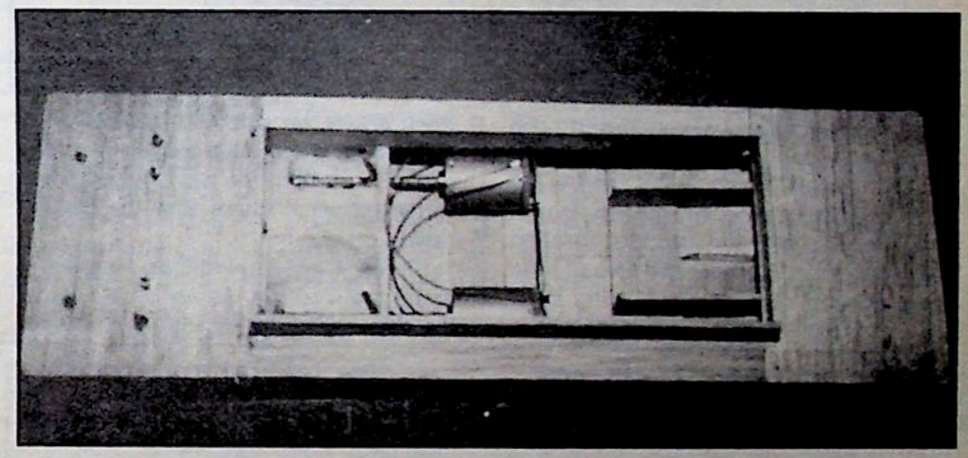
I have found with a hull this size, there is no need to fiberglass the hull. It is very strong structurally, even built from balsa wood. I use 1/8"x3" balsa wood for laying up the hull. The bow is slightly V-shaped, which classifies it as being a model bow. The first thing to do was make the sides of the hull. I then cut the pieces for the transom and head log (end of the bow). I proceeded to glue these together to form the boxy shape of the hull.

Next, I cut a piece to use as a keel for the rake of the bow. Next, I needed to cut a piece to go across the inside of the hull to hold the keel section in place. I glued the keel section to the head log, but just pinned it to the piece that went across the hull. Likewise, I only pinned that piece onto the hull sides, for it has to come out after the bottom of the hull is laid up. I made another piece to glue across the hull, 5 1/2" from the stern. This gives strength to the hull, plus will be a support for the shafts.

To give the hull some strength before starting the model bow, I glued on one sheet of the 3" wide balsa for the deck. That way I'm sure to keep the hull square while laying up the bow. Now turn the hull upside down and cut the pieces to start the bow. The balsa wood is flexible enough to make the rake of the bow, but you'll have to cut two pieces for each side



Interior of hull shows installation of motors, shafts, battery compartment and rudder struts.



of the keel line for the "V" shape. After laying up the bow, I glued on the bottom pieces of the hull. The bottom is flat, so there was no problem there.

Back toward the stern, I made another piece that matched the sides of the hull and placed it on the center line of the hull. The bottom of the stern has a curve to it and I wanted to give it extra strength, as this is where the rudders will be located.

After the glue had dried, I removed the piece I had pinned across the inside of the hull for the bow keel. Then I cut out about three quarters of the keel piece, down close to the glued bow pieces. The reason for this is, to make room for the 7.2 volt NiCd battery.

After I finished cutting out the keel piece, I glued two pieces of balsa wood 4" long, two inches apart, to make a "box" to hold the battery in place.

Next, I began to figure the opening dimensions for the cabin. What we want to do here is have an access into the hull for placement and maintenance of the running gear, servos, and receiver. I found that the 3" piece I glued on for the deck earlier went back far enough for the cabin to rest on. All I needed now was the stern deck and each guard (side along the cabin). I cut two pieces of balsa 8 1/2" long and 7/8" wide, to make the deck along the guard. I then finished on out the stern with sheeting.

Next, I cut three pieces of balsa one-inch high and glued it along the front and sides of the opening. Here you have to be sure that it will fit inside your cabin walls. It serves two purposes, one to hold the cabin in place, and to keep water from washing into the hull. You may want to build the main cabin first to test fit it all together. Keep one thing in mind. The forward cabin bulkhead has a scale one foot angle to it, so you will want to angle the front of your box.

RUDDERS AND SHAFTS

I use brass to make the rudders, sleeves, shafts and stuffing boxes. The rudders were made from .010" brass sheet, the rudder shaft from 3/32" brass tubing and the sleeves from 5/32" brass tubing.

First, I cut the two steering rudders and four flanking rudders from the brass sheet, then I cut six pieces of 3/32" tubing two inches long. Then I cut a slot in each tubing for each rudder to slide into and soldered them. Next, I located where the rudder shafts protrude through the hull and drilled holes for the 5/32" tubing to fit snug in. I then cut two pieces of 5/32" tubing for the steering rudder sleeves and four for the flanking rudder sleeves, leaving about 1/16" protruding out the bottom of the hull and about 3/16" protruding out the top of the hull.

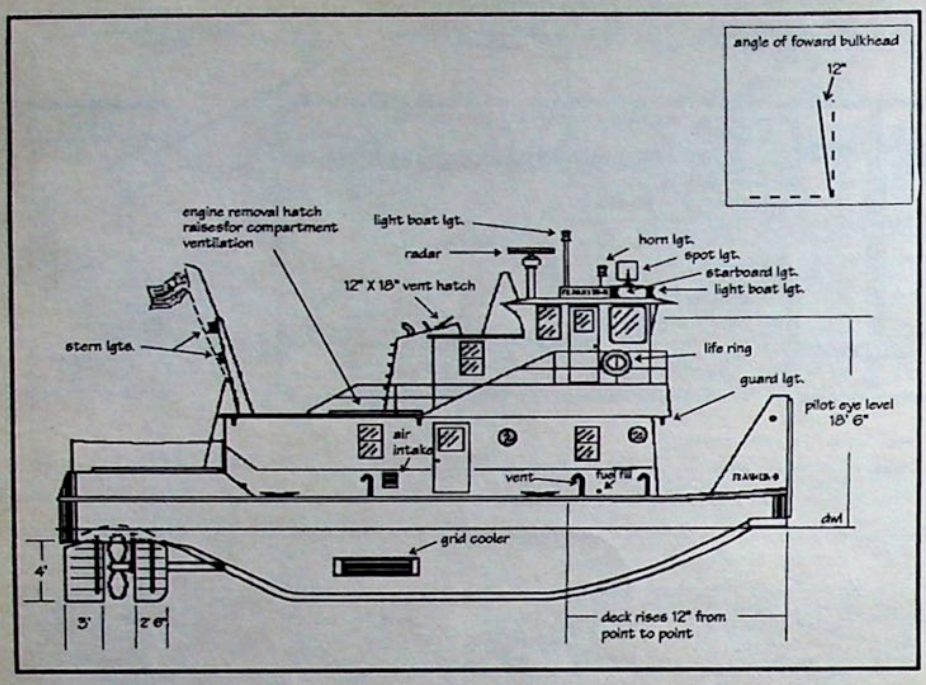
Next I made my own bell cranks from the brass sheet stock. I made three straight pieces and three 90-degree angle pieces. I drilled a hole for the rudder shaft and two holes for the linkages into each crank. I used brass rod for the linkages between each rudder.

The trick I used for hooking them together was to make my linkage angles at right angles to each other, then after inserting into cranks bend the ends of the linkage from one another, so it couldn't work itself loose.

Each stuffing box was made from 3/16" tubing cut four inches long, with a 1/2" length of 5/32" tubing soldered in each end for the sleeve bearings. I soldered a 1 1/2" length of 1/16" tubing 3/4" from the front of the shaft, drilled a hole down through the stuffing box, to use for a grease tube. This will be used to force the grease into the stuffing box. After making the two stuffing boxes, I drilled holes and epoxied then into place.

With the support we placed in the hull earlier, there was no need to put any shaft support between the rudders. The shafts are rigid mounted this way. I used 3/32" brass rod for the shaft.

Propellers can be purchased through model catalogs. I scratch-built mine from



brass stock. I would say a 35mm prop would be about the right size for this model. It takes a right hand, and a left hand, four-fluke prop for most towboats.

With my shafts and rudders installed and hooked up, I proceeded to build the raised stern. I made the sides and deck from 1/16" balsa wood. Before gluing the deck down, be sure the rudders work properly and the push rod going to the servo is installed. You won't have access to the rudder linkages after the deck is down.

Before I went any further, I made the main cabin so I could test fit it against the steps going up the stern. I made the steps from 1/8" balsa wood. I set the main cabin on the deck and got measurements for the proper width of the steps. After the steps were glued in place, I took some balsa, cut 1/2" high, and made offset angles from the back of the steps to the box around the deck opening to prevent water from getting in around the stern area.

There is a wide corner knuckle on each corner of the bow. This is to prevent the bow from riding up on the stern of a loaded barge when hit from the corner. To look at it, it seems to square off the area from the tow knee around to the bow rake down to the waterline. After these were made, then the hull was ready for painting.

I put four coats of polyurethane on the hull inside and out, sanding good between each coat. For the finishing coat I used a semi-gloss black on the hull and painted the deck and steps red.

BUILDING THE CABINS

I decided to model the boat during good weather, when all the doors and vent hatches would be opened. This gives a more realistic look to the model. The material I used for building the walls is 1/16" clear acrylic plastic. The plastic usually has a film on it to protect from scratching. Keep this on as long as possible.

I have mastered a technique for building doors and windows that saves a lot of building time. First, I cut out the pieces that make up the bulkheads. I cut the aft bulkhead to the main cabin a scale 2' 6" shorter in height, to allow clearance for the push rod going from the servo to rudder linkages. After cutting out the bulkheads, I run a couple strips of masking tape on the plastic where the windows will be located. It would be a good idea to mark which pieces are the port, starboard, forward and rear bulkheads. It helps from getting confused which part goes where.

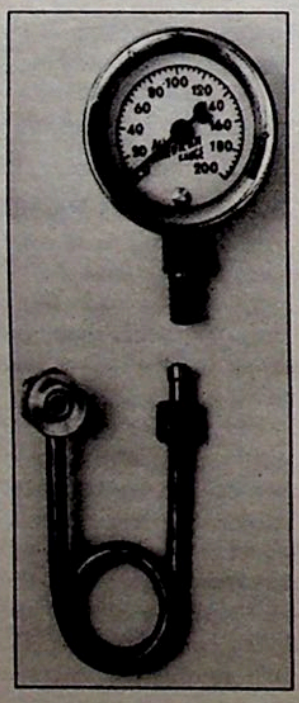
To make the windows, I just marked them off, scribed the lines with a sharp hobby knife, then peeled off the excess masking tape (leaving the tape over the pane area).

For the open doors, I marked off the door, scribed the lines, then left the tape over the door area and removed the excess. After scribing all the windows and doors, I glued all the walls together. I always make my joints connect at the front and rear. It is less likely to be noticeable than being on the sides. Remember when working with 1/16" stock to make the forward and aft bulkheads a scale one foot shorter to allow for the thickness of your side bulkheads.

WE ARE PLEASED TO ADVISE ALL OF OUR VERY PATIENT CUSTOMERS WHO HAVE WAITED SO LONG THAT WE NOW HAVE THE

"ALL-AMERICAN" PRESSURE GAUGE AVAILABLE!

The gauge is 1 1/4" overall diameter including flange. We can supply the gauge in 100, 160, 200 and 300 PSI. The gauge is threaded 3/16"-32 N.S. We also supply the syphon for the gauge.



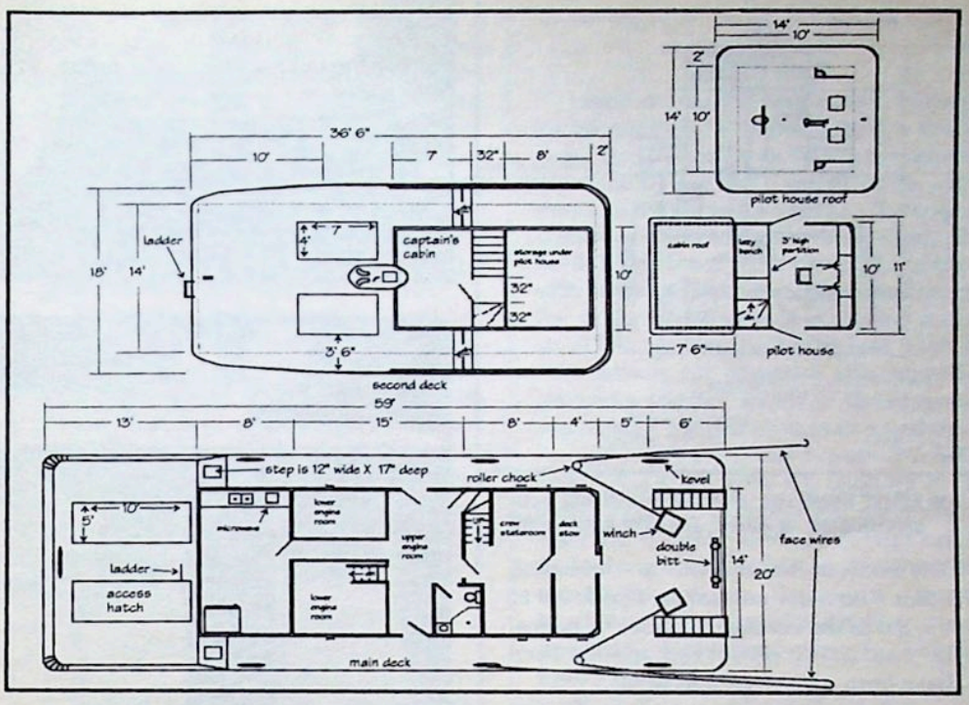
"All American" Pressure Gauge . . . $102.00

Syphon for Gauge $20.00

We also have a new **CATALOG 26** to offer our customers. We have several new items to introduce and many of the old favorite standbys that we have supplied over our long 66-year history. Our new catalog will be $5.00 to U.S. residents and $8.00 to all other countries.

COLES' POWER MODELS, INC.

839 E. FRONT ST., P.O. BOX 788
VENTURA, CA 93002
TELEPHONE (805) 643-7065 or FAX (805) 643-5160



Next thing was to make the decks and roof. I used 1/8" balsa wood for the roof and 1/16" for the decks. I gave the balsa wood three coats of wood sealer, sanding between each coats, then glued the second deck onto the main cabin.

Once dry, I cleaned any dust off the structure and painted the main cabin and deck white. After that had dried, I removed the masking tape over the windows and doors, then painted the top of the deck red. The raised pilot house has a pilot's cabin built onto the back of it. After cutting the bulkheads, make the windows and doors, I glued it all together along with the roof for the pilot's cabin. I left the roof off on the pilot house for interior detailing later.

I placed masking tape over the top of the pilot house, so over-spray wouldn't get in. The interior has an off-white almost an almond color. I first spray painted my interior color on the cabins, let that dry, then painted my exterior color. Sometimes if you have a dark interior color, you have to use a primer coat between the interior and exterior when using this technique, to avoid unmatched exterior colors. After the paint dried, I removed the masking tape over the windows and doors.

The next part of the project was to build the stairs and raised deck around the pilot house. I used 1/8" balsa to make the stairs and riser supports for the deck. I then cut and fit a piece of 1/16" balsa to fit around the pilot house. Next step was to build the stairs and deck inside the pilot house.

THE PILOT HOUSE

The stairs spiral down from the pilot house deck to a landing for the doorway into the pilot's cabin. As the rest of the stairs can't be seen through the windows, all I needed was the landing and the steps down to it. First, I had to make the riser for the pilot house deck and put down my deck. After test fitting my deck, I painted it red then glued it in. I then built the landing in front of the pilot's cabin door, painted it red then glued it in.

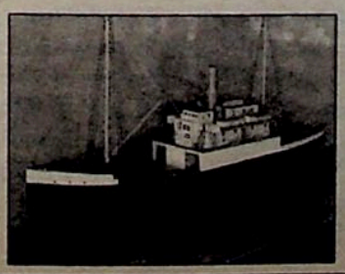
Now all I needed was the steps. I cut three squares to fit the area of the steps. the bottom I left square, the second I cut 1/3 off at an angle, then the third I cut 2/3 off at an angle. I glued them on top of one another and it made the spiral steps. All that was needed was to paint then glue in place.

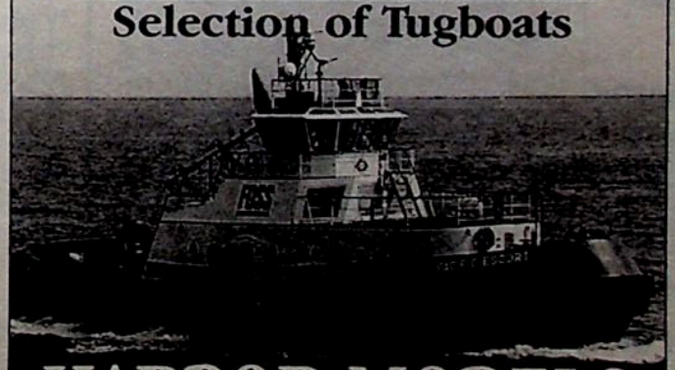
There is a three-foot high partition that separates the pilot house deck from the stair well. I made it from 1/16" balsa wood then glued a piece of sign stock across the top to make the "lazy bench."

The next part was to make a console. This I made from two pieces of 1/8" balsa wood glued together to make it 1/4" thick. I rounded the front edges and sanded a slight angle on the back to give the front and top of the console the appropriate angle. I made the rudder arms from .040 strip plastic, the throttle controls from a shaped piece of balsa wood

World's Largest
Selection of Tugboats

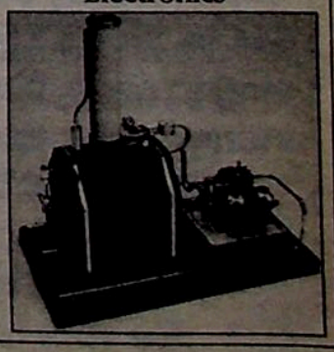
• Caldercraft •
• Model Slipway •
• Robbe • Ace •
• Dynamic •
• Dean's Marine •
• Wedico • Graupner •
• Futaba • Billing •
• Astroflight •
• Schaffer • Dumas •
• Prop Shop •
and more...

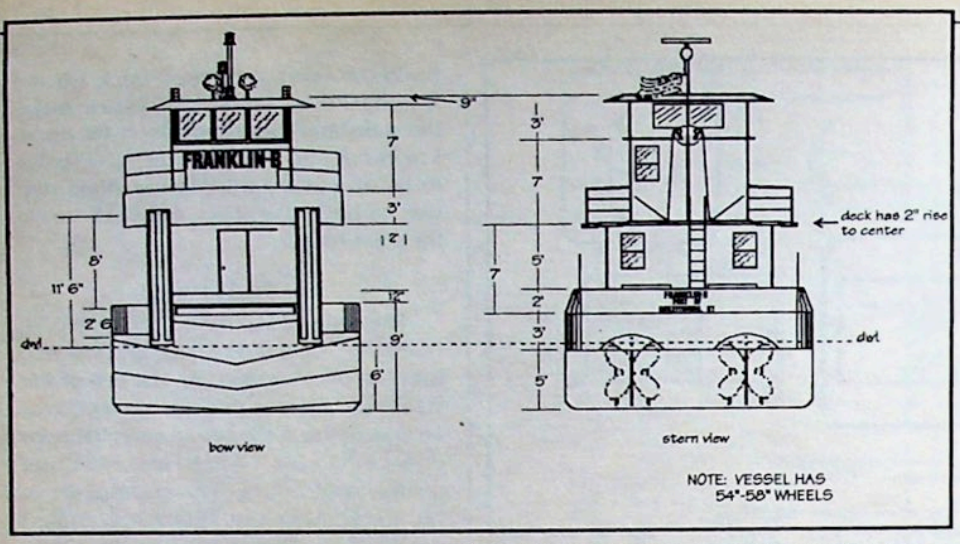


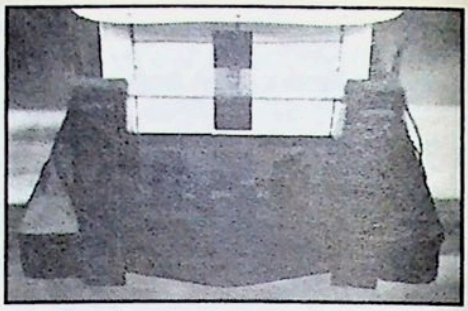


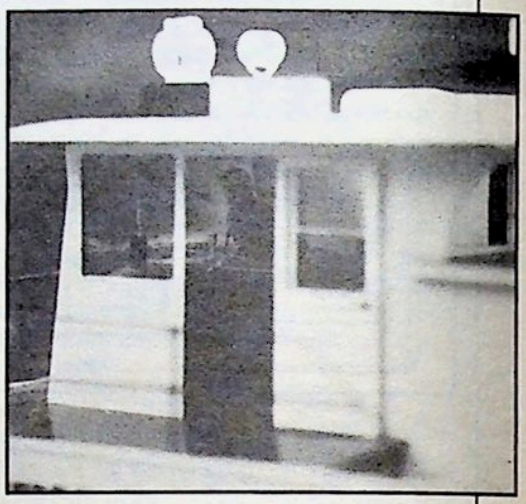
HARBOR MODELS
The Scale Tugboat Specialists
17457 Appalachian Street, Fountain Valley, CA 92708 (714) 435-0716
VISA MasterCard
We now offer the complete line of Cheddar Models steam engines and accessories.
Please send $5.00 for their full color catalog.

Send $5.00 for our latest catalog featuring over 140 Tugboats, Workboats, and Merchant Vessels.
• Hulls • Kits •
• Semi-Kits •
• Motors • Fittings •
• Electronics •









■ **ABOVE RIGHT: Winches and double bitt were scratch-built. ■ RIGHT: The pilot at the helm**

and two pieces of .040 brass rod, and the switch plates from a small piece of sign stock. The switches and indicator lights were made using a needle dipped in paint and making small dots on the switch plates. The console and switch plates are painted the almond color of the walls.

For the radar unit, I used strip plastic for the mounting bracket and balsa wood for the body of the radar. I cut a piece of sign stock for the front of the unit and cut a round hole in it for the screen. I then glued it to the front of the radar unit, painted it black and the screen orange.

The body of the unit was an olive drab color. The radar unit sat on a pedestal to the left of the console. I made the pedestal from a 1/8" dowel rod and the floor base from a piece of sign stock.

What's all this sign stock stuff? Sign stock is the plastic sign material you buy at the department or hardware store. I just sand both sides to knock off the gloss, so the glue will adhere good. Most of the time, I use the thinner, smaller signs.

We need one more item to finish the pilot house — a pilot's chair. It resembles an old pedestal van seat with the headrest moulded in. I carved the seat from balsa wood and used plastic strip for arm rests. The pedestal was made the same as for the radar with one exception. I used .040 brass rod to make a foot rest.

THE ROOF

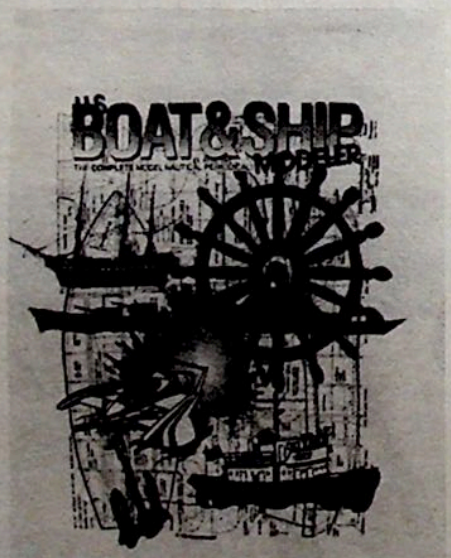
Now that we have the pilot house interior out of the way, it is time to start on the roof. By the way, if you want to add a figure at the helm now would be a good time to add that. As I said earlier, I used a piece of 1/8" balsa wood to make the roof. I rounded the edges and sanded the edges of the top to slope down to a thin edge around the roof.

The next step is to do the interior part of the roof. The ceiling has 12"x12" tiles. I imitated these by scribing scale 12"x12" squares with a pen. The ceiling is almond color, while the rest of the roof is white. I painted both sides of the roof white, then marked off the interior section and brush painted it the almond color.

The spotlight poles and the horn lanyard are the brass lever type controls. All I had to do here was bend a 90-degree angle on one end of a piece of brass rod and insert into a hole in the ceiling. It's all right to put the hole all the way through the roof. As a matter of fact, it helps to locate the position for the spotlights and horn. The horn lanyard has two bends in it. One 90-degree to the right then another 90-degree down.

Sail into fashion with our
U.S. BOAT & SHIP MODELER
super new tee.

The nautical colors of red, white and blue on a white background are perfect for the ship modeling hobbyist. Super quality, 50% cotton/50% polyester to maintain true colors and hold their shape. Order now by sending $14.95 plus $1.50 shipping in cash, check or money order to:



U.S. BOAT & SHIP MODELER TEES
34249 Camino Capistrano, Capistrano Beach, CA 92624
CA residents add $1.27 sales tax
Be sure to specify shirt size: L, XL, XXL

There are two two-way radios mounted on the ceiling. They're located in front of the spotlight poles, close to the windshield area. I made them from balsa, using the needle-paint method for dials.

For super-detailing, you can take a piece of thread and separate the strands to make a mic cord and use a small rectangular piece of wood or plastic for the mic. With the ceiling details finished, I glued the roof onto the pilot house.

Spotlights can be purchased from any of the fine model catalogs. You can usually find radars, too. I made my radar from a piece of dowel rod for the pole, balsa for the unit, and strip plastic for the antenna. Other lights, such as the light boat lights, navigation lights and guard lights, were made from 1/8" dowel rod and painted their appropriate color. The name boards and navigation light frames were made from sign stock.

DECK DETAILS

For the exhaust stack, I used a block of balsa wood carved into shape. I used brass tubing for the pipes, sign stock for the opened hatch and paper staples for the ladder rungs up the back of the stack. The ladders, kevels, life rings and brass bell came from the Dromedary. The double bitt I made from 1/8" dowel rod. The winches were scratch-built with dowel rod, sign stock and nylon thread. The flagstaff was made of balsa wood with .040" brass rod for the flag pole. A 1/16" dowel rod was used for the stern lights. The vents on deck were made from 1/16" plastic coated metal rod. Lettering was done with dry transfer lettering. The hand railing was scratch built from .040 brass rod.

Two other items on the cabins that need mentioning are the open engine room hatches and the pilot house doors. The hatches were made from sign stock. I painted the area under the hatch to give the appearance of an opening. The doors was made from clear plastic with a piece of brass rod for the knob. To make the door, just cut out the size of your door. Mask off and scribe the window, paint the door and let dry. When dry, take off tape, drill small hole and glue in small piece of brass rod for knob. Now glue the door to where it is opened back against the pilot house.

Last but not least, I made the tow knees. I cut eight pieces of 1/8" balsa wood, shaped for the tow knees, and glued four pieces side-by-side. I glued a piece of sign stock to each side. The balsa was cut a scale 10 inches smaller on the stair side, to allow for gluing steps between the outer sign stock pieces.

ELECTRONICS

I ordered my RC electronics, battery, speed control and motors from a mail-order company. The radio is a two-channel Futaba. I use one channel for the rudders and the other for throttle. The speed control is a three -speed Aristo-Craft. To hook it up, I just put a piece of double-sided tape on the speed control and stuck the servo to the side of it. Then I put a short linkage to connect the two. I use a 7.2v battery for power. It also supplies power for the BEC receiver. The diagram shows how everything comes together.

The motors are rated around 6,500 rpm at six volts. They are rated for 6-12 volts so they don't work hard at 7.2 volts. They are coupled to the shaft with small fuel tubing made for model airplanes. To mount the motors, they were almost touching the bottom of the hull, so I just put a dab of silicone caulking on them to hold them in place.

CONCLUSION

After I built the model, the people at Boggs' Landing got to talking about a way to build a fleet deck on their Yates' built boats (they own three). When I got home, I started working on a fleet deck for the model. A fleet deck is the grid deck that is placed between the tow knees, that allows easier access onto empty barges.

I took the model up to show the design. Most of the crew liked the idea, but the main man didn't care for it. Oh well, it's far less expensive to take it off a model than to tear it off the real thing. That's what models are made for to start with. For me, I like it and I'm going to keep it on my boat.

As far as operation of the model is concerned, my wife runs it all the time. She said my other boats are too complicated. The motors worked out good for prototype operation. For more oomph, I believe I would use the hobby motors from Radio Shack, rated at 15,000 rpm at 12 volts. They do get a little warm though.

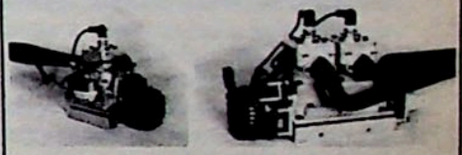
My next article will be the fuel flat owned by Merdie Boggs & Sons. You can find it being pushed by the *Franklin-B* or her sister boat the *Mark-M* any time there is a line haul boat or a barge with running machinery to be refueled. It will be written for the novice with step-by-step instructions.

For more information on my scratch building techniques for lighting, etc. write me: Joe Brown, 1010 Turley Ave., Flatwoods, KY 41139. ***USB***

BLAZER
R.C. BOAT WORKS

F-41 STRIKER

J & G MUSCLE MACHINE 22.5cc
4.9HP@ 14500 RPM



QUICKDRAW 28cc TO 140cc
35cc 6.6 HP@ 15000 RPM

BLAZER G-23 ZENOHA 22.5cc
3.7HP@ 14300 RPM

GASOLINE POWERED

CATS, VEES, HYDROS
READY TO RUN,
KITS, PARTS, HULLS,
ENGINES

WE HAVE IT ALL

TWO LOCATIONS TO SERVE
YOUR RC BOAT NEEDS
7:30 PM to 10:30 PM
WEEKNIGHTS

BLAZER
R.C. BOAT WORKS

10421 S. CICERO AVE.
OAK LAWN, IL 60453
708-422-7370 (PHONE/FAX)

8906 LaDona CT.
FOUNTAIN VALLEY, CA 92708
714-842-2632

CATALOG AND VIDEO - $14.95
CATALOG - $2.00

VISA

BY ROD CARR

A PHOTO IS WORTH 1,000 WORDS..... MORE OR LESS

EVERY NOW and then the mailman leaves me a surprise package postmarked from some far off lake, bay or river. Inside will be found model yacht photographs, which generally turn out to be goldmines of information — and a wealth of examples of the interaction between wind and sail, wave and hull.

My approach to these contributions is one of humble thankfulness. Someone has taken the time to stop sailing, pick up the camera, take the shot, process the film and send it on its way to me. That individual has made a direct contribution to our sport and by so doing, enhanced the enjoyment and satisfaction we may all derive from it.

The analysis of the photos provides a means of considering the forces and geometries which come together to make our craft move. The photo captures an instant in time. It may represent an average condition or it might show us the arrival of a gust. Whatever it is, we have the opportunity to freeze that instant in time, and consider it from every angle and aspect.

Considering the shapes we see and diagnosing the illnesses of the odd ones, is done in hopes of all of us becoming more adept at recognizing good sail shape, and having a bag of tools for adjusting things until we see just that. No one sets out to accomplish poor sail shape, and no contributor is held to task for the conclusions I or you might draw. After all, he took the picture and bestowed it on us. Having said all that, we can embark on some particularly interesting photos that have arrived.

Photo #1 came from Gunnar Salkind, a Pacific Northwest builder and skipper. His boat is a 36" LOA, 10 1/4" beam, 12" draft sloop that displaces eight pounds.

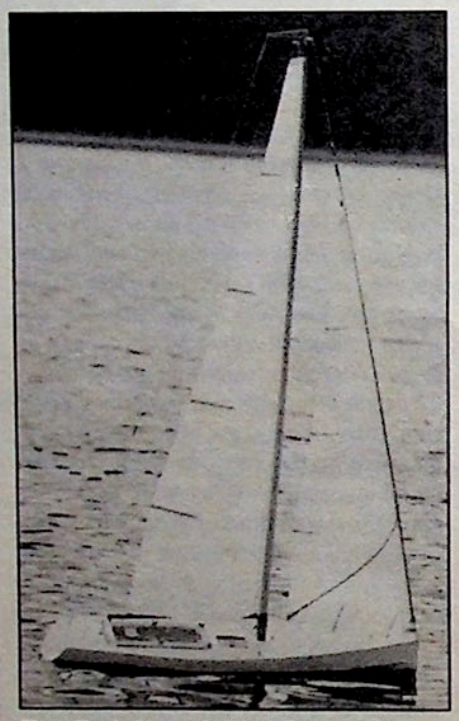


Photo No. 1. Gunnar Salkind's 36-inch LOA sloop with "Wishbone" jib club on port tack.

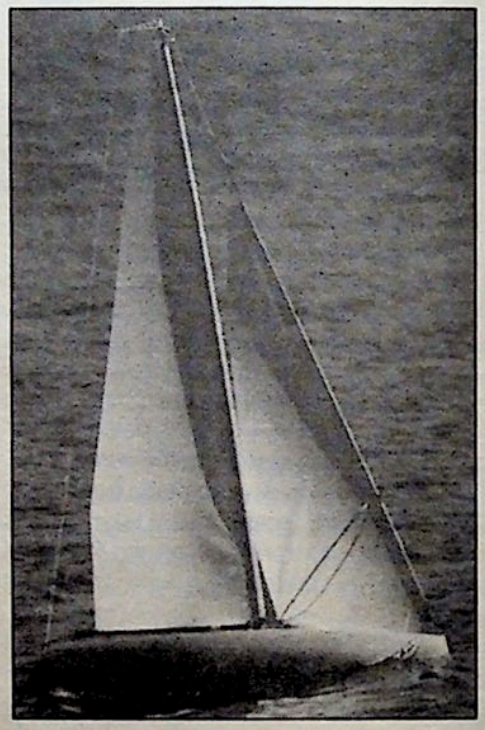


Photo No. 2. "Wishbone" stands proud on starboard tack.

Her rigging is somewhat out of the ordinary. The mainsail is a sleeve luff — that is, it wraps completely around the mast. Gunnar has chosen to use a mast (the type of which was unspecified) that did not need spreaders or side stays for lateral support, and apparently stepped it on the keel of the boat, held firmly at the deck and by the masthead with its backstay and jibstay.

The change in relative angle between the battens in this photo indicates that the mast is bending off to leeward under wind pressure, and the result is to slacken the mainsail leech, allowing twist to develop in the sail and reducing the heeling effect of the upper parts of the mainsail. If you sail in gusty winds, this mechanism is automatic and can be set up on boats that are rigged differently than Gunnar's, a subject for a future column.

But notice the jib on Gunnar's boat. In Photo #1 we see a flexible "wishbone" boom on the starboard side of the sail which is attached to the jibstay and runs perpendicular from it to the jib clew. A very careful sighting along the jib stay indicates that the stay runs from the masthead to the wishbone, makes a small but discernible angle, and proceeds down to the tack of the sail and the foredeck. This situation requires that the sailmaker know exactly where the wishbone attaches, and then he must cut the jib luff in the shape shown in an exaggerated way in Figure 1. The amount of sag to be allowed for

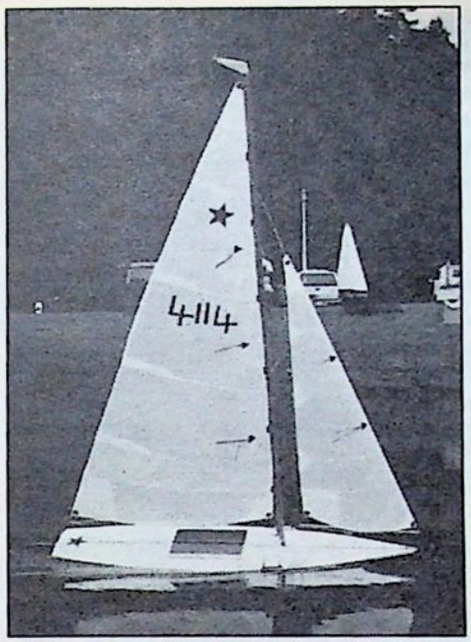


Photo No. 3. Ken Lockley's Star 45.

on either side of the wishbone will be different.

The wishbone has a direct influence on the jibstay shape, because sail pressure is transmitted along the wishbone to the clew and almost perpendicular to the jibstay at the wishbone's attachment point.

In Figure 1, the arrow marked B indicates the movement of the wishbone forward under wind pressure, carrying the jibstay with it. At the same time, sheet pressure increases and the force on the clew area becomes greater as shown by arrow "A". The result is that the area in the sail marked S-T-A-R-V-E simply runs out of cloth and we might well expect a substantial wrinkle to develop running up from the clew.

Photo 2 comes as no surprise and there the wrinkle is, right where it is supposed appear. The boat is heeling more than in the previous picture, and the ripple pattern on the water confirms a stronger breeze. It is also on starboard tack, and the wishbone is now standing proud of the sail.

Why would you want a wishbone? It is a very interesting experiment, reminiscent of the Vortex SOLING's full length batten, "NERNY FLOGGER" of the early '70s. From a distance, it makes a major contribution to the scale appearance of the jib and the foredeck. If I could have one wish, it would be for some draft stripes so we could tell more about both of the sail's shapes.

Photo 3 introduces the STAR 45 of Ken Lockley of Victoria, British Columbia. A pretty good-sized fleet has grown up there in the past couple of years. The STAR has a good sail area to displacement ratio, which makes it a good performer in the typically light air summers that the Pacific Northwest suffer with. The boat is well heeled, and the upper two weather tell tales on both main and jib are streaming. This indicates that the wind has filled the upper 2/3 of the sails, and is confirmed by the lack of ripples on the water surface.

The puff must have just hit, since the visible bow wake only extends a boat length or so behind the boat. The jib club is strapped in pretty tightly for best speed, and from the seams would appear to have a substantial amount of camber, which will make it pretty easy to interfere with the airflow over the main if the slot is not kept well open.

The STAR's performance comes from her mainsail, and optimizing trim and tune for its efficiency is the key to good performance. Though hard to tell convincingly, I suspect that the upper third of the sail could do with some more camber to take advantage of the higher power which the higher speed wind up off the water carries.

Note that Ken has color-coded his hatch to help remind of which tack he is on. I wonder if he wears one red and one green sock? Don't laugh, the late Bob Harris used to have a jacket with a red arm and a green one, and just to be sure they were labeled "PORT" and "STARBOARD."

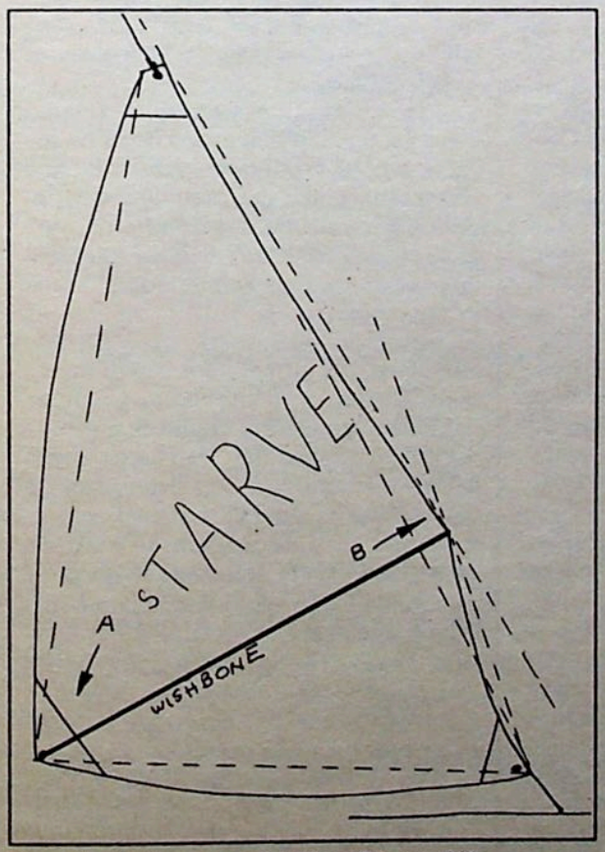


Figure No. 1. Forces on a "wishbone" boomed jib.

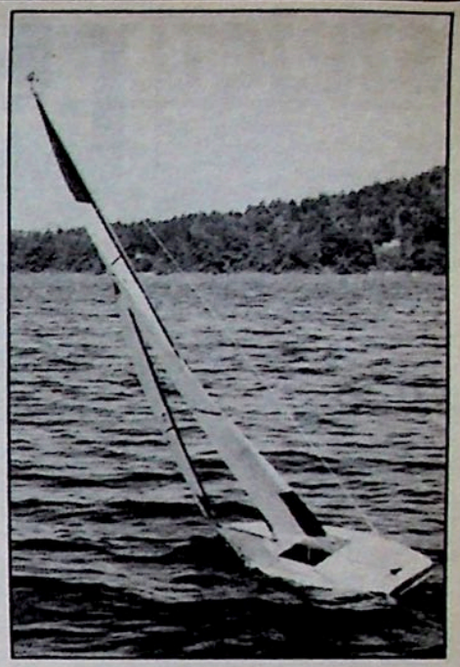


Photo No. 4. New sails on Star twisted to handle heavier air.

Photo 4 is the same boat, but a different day and a different suit of sails. Ken did a great job of getting this photo, because it reveals all sorts of concerns that we have about getting proper sail set and trim. The wind speed looks to be about seven or eight knots, and the sails have been twisted off to help keep the boat on her feet. This is good technique, because a STAR doesn't perform well if the heel angle gets up toward 45 degrees. But, since twisting off functionally reefs the sail by making head not work, then the remaining parts of the sail need to maintain good camber to generate power needed to drive the hull through the lumpy water that the wind has piled up. The mainsail is much flatter than it needs to be in its mid and lower sections.

If you have your sailmaker make you a sail that you will use in upper wind ranges, it must be designed with plenty of camber. A high twist sail should have so much camber that it cannot make the boat perform when the leech is tightened. Remember, when twist goes up, camber goes down and vice versa.

On the other hand, if you have a sail made for lighter air when you will want to use it without twist, you'll still be able to let it twist off and all that will happen is that it will not maintain enough camber to be really powerful. I think that is the situation with the STAR mainsail we see here. Maybe the day started light and the wind has built to the time the photo was taken. The jib is flatter than the sail in Photo 3, and is doing a good job here with the slot plenty open to not backwind the lower parts of the main, where the power is coming from to drive the hull.

continued on page 53

PRODUCT REVIEW

BY RICHARD A. YOUNG

GOLD & GLUE

DECORATOR FINISHES — For some time now, Scottie Dayton has been after me to try Rub 'n Buff Antique Gold to simulate gilding on my ornamental ship carvings. I've always preferred leaving them natural to prove they were wood. Finally, I acquired a 1/2-ounce tube to try on the stern decoration on my Mayflower model.

After carving the two dolphins and the flower from lilac, I prepared the wood by removing all traces of sawdust with a rotary brush. I was told to apply Rub 'n Buff with my fingertip, using a gentle rubbing motion rather than strokes. Rub 'n Buff (a combination of imported carnuba waxes, fine metallic powders and select pigments) came out of the tube with the feel and consistency of cold cream. What I thought was a little dab proved way too much. I also discovered that I couldn't work the color into the minute recesses of the carvings with my fat finger. A semi-stiff, short bristled brush cured that problem. It soon became apparent that the best way to apply Rub 'n Buff for this application was to use an almost dry brush approach.

The compound immediately grabs and completely covers the surface of the wood. Its adhesive quality is truly astonishing. To prove my point, I applied antique gold to my dolphin applique while it was still attached to its work block. What Rub 'n Buff accidentally got onto the scrap wood is still there in pristine condition, even though I use that block [illegible] a mini bench. It penetrates [illegible] an almost permanent surface. This makes it highly durable, but also extremely difficult to remove if it gets onto the wrong thing.

Brush cleanup was accomplished with lacquer thinner, because that was all I had. The manufacturer recommends mineral spirits or turpentine. Since my brush still has a gold hue to it, I'd suggest following that advice.

The carving was finished by first buffing it with a clean finger when the Antique Gold dried. The following day, I buffed again using a paper towel. This produced a deep, rich luster. Careful examination revealed no loss of minute detail and the color looks quite realistic.

If you've been dissatisfied with gold hobby paints or the effort it takes to apply real gold leaf, Rub 'n Buff is the best alternative I've found. It comes in 18 different colors, including silver, copper, gold leaf, Grecian gold and ebony. Visit your craft store or write Rub 'n Buff Division, American Art Clay Co., 4717 W. 16th Street, Indianapolis, IN 46222. Send a SASE for their Rub 'n Buff brochure and ask for one on Brush 'n Leaf while you're at it.

MAXI-CURE FROM BOB SMITH — Because I suffer severe allergic reactions to cyanoacrylates, I was a bit leery when Bob Smith Industries provided a bottle of odorless Super Gold+ to test. It proved to be an excellent product, however, and I remained symptom-free. Super Gold+ is the consistency of water, so when its extra thick brother, Maxi-Cure, made its debut, I was anxious to try it.

This cyano bonds hardwoods, metal, fiberglass, rubber and most plastics (including GE's Lexan) in 10 to 25 seconds. Although it has some odor, it's much less than other brands. My nose stuffed up a little while using the glue, but I didn't suffer the horrible head cold symptoms as in the past.

One advantage Maxi-Cure affords the modeler is its gap-filling ability. Tolerances don't have to be exact (I'm not advocating sloppy craftsmanship). For example, belaying pin holes can be drilled one size larger so the pin and line fit comfortably. A droplet of Maxi-Cure holds them securely. Use it to anchor spare pins to their rails. I did this after turning my model upside down to shake off the wood chips, then watching in horror as the pins that weren't belayed fell to the floor.

Maxi-Cure worked quite well when I installed applewood moulding to a pine cabin roof. Normally I drill and pin as I go along. This time I ran Maxi-Cure a little way, pulled the moulding around, then sprayed on the accelerator, Insta-Set. Maxi-Cure bonded the apple to the pine without any clamping. I was impressed and delighted.

To test Maxi-Cure's gap-filling properties, I used it to replace the corner on my cabin roof. A crash dive to the floor had chipped it. Once the moulding was installed around the damaged area, one application of Maxi-Cure filled the 1/16-inch gap between it and the roof. I let the cyano cure by itself.

Maxi-Cure lay smoothly in the gap and rebuilt the missing tip of the corner in seconds. The roof was finished by gluing on model airplane silk to duplicate a canvas deck, then sprayed gray. Had the roof been left in its natural wooden state, planking would have covered the patched corner.

Maxi-Cure's thick viscosity makes it easy to work with, especially when using a toothpick for an applicator. In fact, Maxi-Cure is similar to Elmer's Glue-All in thickness. I really like Maxi-Cure. Between it and Super Gold+, I have two adhesives that cover all areas where I'd use a cyano. Best of all, they don't make me ill.

Ask your hobby shop for these products or write to Chuck Smith, National Sales Manager, Bob Smith Industries, 8060 Morro Road, Atascadero, CA 93422. *USB*

RadioActive Hobbies - - - Says:

Any Fly-By Night Manufacturer Who Wants To Copy Our Boat Hulls, GO RIGHT AHEAD, Be Our Guest. On One Condition, Make Sure You Copy Our Quality And Prices Too . No Better Product-No Better Price !!!

Hand-crafted Fiberglass Gelcoated Boat Hull Kits, You Choose

---------- $ 155.oo ----------

52in "Equalizer" Deep-Vee ---------- 46in "Falcon" Deep-Vee
41in "Brenford" Catamaran ---------- The "Ritz" Cracker-Box

All RadioActive Hobbies Hand-crafted Fiberglass Gelcoated Boat Kits Include: Radio Box, Wooden Engine Rails , Wooden Transom, Cowl & Our Price & Quality Guarantee: **Find a comparable product, at a lower price, and we will refund the difference back to you in cash & we'll add an additional 7% just to show you WE MEAN BUSINESS !**

Full Race Factory Modified & Water Cooled Zenoah G-23

---------- $ 295.oo ----------

Since There's Only One Factory Water Cooled Zenoah G-23 Engine On The Market, Don't Be Fooled ! And Whatever You Do, Don't Pay More Than $ 295.oo.

Full Race Modified & Water Cooled "HOMELITES"

---------- $ 195.oo ----------

The Finest Gas Exhaust Systems & Nitro Tuned Pipes In The World

Complete Gas Exhaust System ---------- $ 77.oo
Water Cooled Gas Tuned Pipe ---------- $ 33.oo
15 cc Nitro Tuned Pipe ---------- $ 24.oo
11cc Nitro Tuned Pipe ---------- $ 21.oo
7.5cc Nitro Tuned Pipe ---------- $ 18.oo
3.5cc Nitro Tuned Pipe ---------- $ 16.oo

To Order Today Call: 702-433-9135

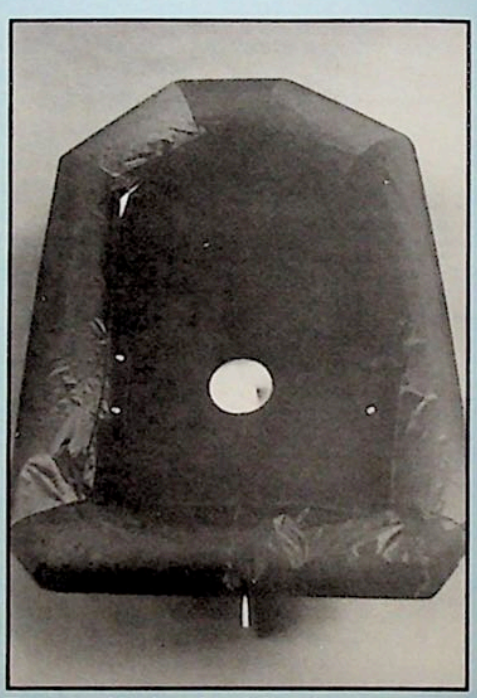
BOAT TEST

BY W.H. GEBHART

SK-5 U.S. ARMY COMBAT HOVERCRAFT

KINETICS INC. 1/24 SCALE ELECTRIC RC

The SK-5 Hovercraft is ready to go—with its seal bag inflated.



The underside shot of the inflated seal bag shows exit orifice of lift fan with bag feed holes to the left and right.

A new RC model concept, in the form of a 1/24 scale electric U.S. Army combat hovercraft (a gas version is also available), is finding its way to your local hobby shop. This stand-off scale model duplicates the full-sized version in appearance and operation, including its amphibious capabilities.

Equally at home in the water or on land, this former "concept vehicle" has had little public exposure here in the U.S., because its development and utilization has been primarily military.

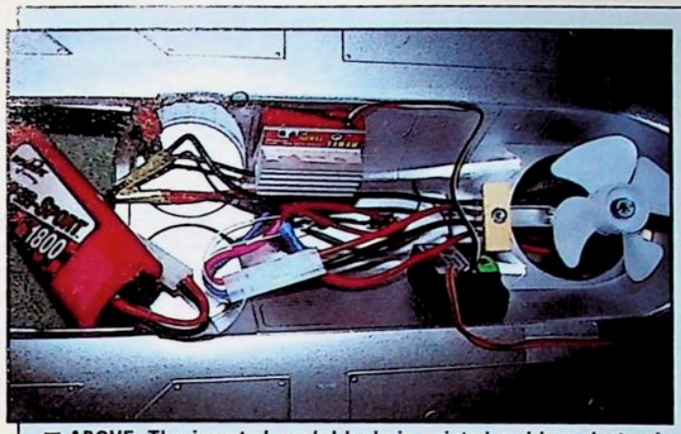
However, in recent years, proponents of hovercraft technology have been scrambling for commercial success in the post cold-war era like many other military supported industries that have suffered cut-backs and have found R&D funding to be dwindling. Applications in the commercial world that fit the unique capabilities of Air Cushion Vehicles (ACV) have been searched out and pursued to the ultimate success of the technology surviving and evolving in the peacetime world.

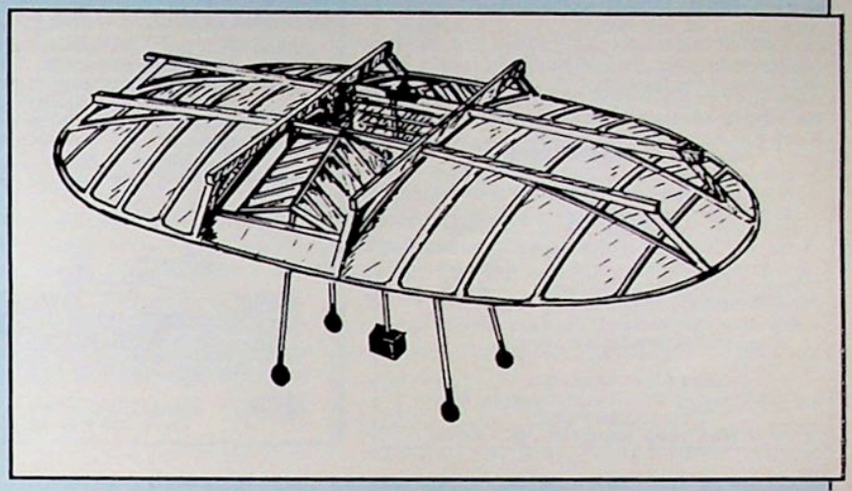
As is often the case with such advanced concept technologies, refinements have been achieved through the diligent work of talented individuals here in the United States, only to be sent overseas when the commercial demand here has been found lacking.

One of these individuals is Joseph Sladky, president and founder of Kinetics Inc. of Mercer Island, Washington, the producer of the scale RC version of the SK-5 Army Assault Hovercraft.

"We (in the United States) are in the desirable position to have a very well planned and executed transportation network that links all parts of our country. The countries of Western Europe, Scandinavia in particular, have a majority of their countryside accessible to the sea and have never been forced to develop a modern overland transportation system. Amphibious ACV's have found extensive applications in these countries. It was actually the British who, early on, proved the feasibility of these vehicles.

"Here in the U.S., the public's exposure to ACV's has been confined to military excursions (most recently we were shown news footage of the amphibious landing in Somalia where these craft were





■ ABOVE: The inverted model body is painted and has electronic components in place. ■ ABOVE RIGHT: The hovercraft — as envisioned by inventor Emanuel Swedenborg in 1716. ■ BELOW RIGHT: The Kinetics SK-5 Hovercraft makes a beachhead on a friendly shore, proving its amphibious versatility.

used). Our most extensive use of this technology was during the Vietnam War."

There were about 20 of the SK-5 U.S. Army Assault Hovercraft stationed on an island at the mouth of the Mekong Delta, from which were launched missions of interdiction, and search and destroy, for the U.S. Armed Forces. Its amphibious capability enabled the SK-5 to traverse from open water to swamps and rice paddies at high speeds, thus thwarting the traditional guerrilla tactics of strike and run, in that terrain.

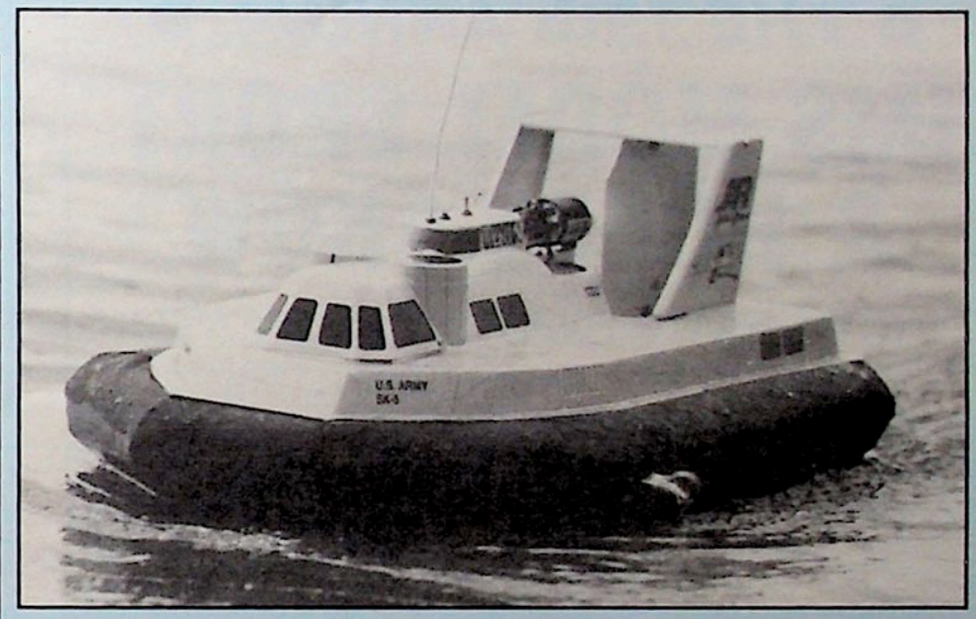
Kinetics' RC Hovercraft models (there are currently two in production, the SK-5 and the civilian version, SR-N6 Fast Passenger Ferry) is actually a spin-off business for Kinetics.

"Kinetics is a technology development company with an emphasis on marine vehicle design and related propulsion systems. We are a primary R&D contractor for the U.S. Navy. One of our most recent projects was the ACU-5 (Assault Combat Unit), a 200-ton ACV that can carry troops, supplies, or even a 62-ton main battle tank. The unique ability application here is to carry material directly to inland points, thus avoiding beach accumulation of cargo."

BACKGROUND

In the broadest general terms, the air cushion vehicle concept made its first historical appearance as the brainchild of Swedish minister and inventor Emanuel Swedenborg in 1716. His proposal consisted of a device resembling an inverted dish which enclosed, over a surface, a volume of air. This volume was to be continuously supplied with air by a man-powered, oar configured, fan device.

The purpose of this machine was to fly, so the connection to the present day air cushion vehicle may only be through geometric similarity. If he had intended to merely hover a few millimeters above the ground he would be lauded as the



HOVERCRAFT SPECFICATIONS

DIMENSIONS: ..... Seal Bag Inflated: Beam - 15.5 inches; Length - 23 inches; Wing Height - 9 inches. At Rest/Craft Only: Beam - 12 inches; Length - 20 inches; Wing Height - 6.5 inches.

WEIGHT: ..... fully loaded, 2.8 pounds.

PROPULSION MOTOR: ..... Royagi Magnum 480R, removable end bell, 540 can w/six-inch, three-blade prop.

LIFT MOTOR: ..... Mabuchi, fixed end bell, 380 can, w/2.6 inch, four-blade prop.

MATERIALS: ..... Body - clear UVEX (Kodak's version of Lexan); Base plate, fan ducting - Styrene; Seal Bag - specially coated spinnaker cloth.

CONTACT: ..... Kinetics Inc., P.O. Box 1071, Mercer Island, WA 98040.

RADIO SYSTEM: ..... JR Python System w/pistol grip transmitter, receiver, two servos.

BATTERY PACK: ..... Dynamite Super Sport 1800 mAH six-cell flat pack.

CONTACT: ..... Horizon Hobby Dist., 4105 Fieldstone Rd. Champaign, IL 61821.

SPEED CONTROL: ..... Tekin "Rebel" Electronic, Reversing Speed Control. Tekin Elec., 940 Calle Negocio, San Clemente, CA 92673.

DTN BOAT SPECIALS

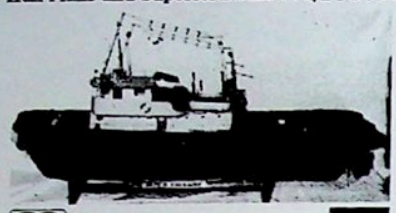
Offshore Cat 50" Hull Only $209.95
Deep-vee 47" Hull only $184.95
Pringles Hydro Dlx $149.95
Outrageous Drag Boat Dlx $112.75
Tekin 100 L Charger $84.95
Motor Aging Machine $64.95
Funny Car Kit $102.95

SHADOW PAVEMENT KITS

Fiberglass kit $114.95
Assembled Sport w/motor ..... $ 99.95
Motor lead wires (pair) ..... $.75
Body Clips 12 per bag $1.95
Tie Straps 4" or 7" 12 per bag $1.55
Tamiya Connector w/wire $1.35
Battery Shrink Wrap (24/bag) $1.95
Decal Sheets Gold-Chrome-Clear ..... $ .65
Pro-stock drag bodies $19.95
(Olds-Ford or Pontiac with wing)

Send $2.00 for catalog.
COD ADD 5.95. HI. RES. add 4% tax
DTN ENTERPRISES
P.O. BOX 1003 KANEOHE, HI. 96744

MODEL SHIPS, FITTINGS, EQUIPMENT
INTERNATIONAL MARINE EXCHANGE
37 Addington Dr. Feasterville, PA 19053
(215) 322-4773
(THE COTE D'EMERAUDE)
One of the most beautiful
ocean going tugs in the world.
Beam 14-1/2" Length 53"
Electric or Steam
Hull Plans and Superstructure . . $255.95



CATALOG $5.00
Over 500 Items

● ***THE 19th ANNUAL*** ●

IMS MODEL SPORT & HOBBY SHOW

BIGGEST & BEST in the WEST!

Trade Only: Friday, 9am - 1pm

PASADENA CENTER

300 East Green Street, Pasadena, California

JANUARY 19, 20, 21, 1996

Friday: 1pm-7pm, Saturday: 10am-6pm, Sunday: 10am-5pm

Win an R/C System (Ist) or Trophies (2nd & 3rd) with your Static Display Models!

FREE Model Airplane Building Lessons!

LARGE INDOOR CAR TRACK

R/C PLANES • CARS • BOATS • HELICOPTERS • ROCKETS • TRAINS

FOR SHOW INFORMATION, PHONE 702-896-2162, Fax 702-897-7775

SWAP SHOP- For Info, contact IMS office.

LIVE R/C DEMOS • RAFFLE

Admission: $7.00 • Children ages 5 & under FREE when with an adult.

ADVANCE ADMISSION TICKETS: $6.00

Send check or M.O. and S.A.S.E. by 12/22/95

International Modeler Shows, Inc., P.O. Box 50729, Henderson, NV 89016-0729

"Say NO to Drugs, YES to Model Hobbies!"

"father" of the technology, but in this instance, he set his sights too high.

The concept of a vehicle riding on a cushion of air has undergone a number of incarnations since Swedenborg with a common feature being that the application was marine based.

Early attempts were focused on reducing drag between hull and water surface by introducing air to the interface. The effect was not sustainable because the air would bleed off to the surface. The design approach was reconsidered and rather than trying to incorporate existing marine hull configurations into the technology, purpose-built craft were designed from the surface up.

It's easy to understand how this new category of vehicle became referred to as a "surface effect vehicle," although such broad terminology could include anything that traverses a medium or the interface of two different mediums (e.g. man walking on the ground).

So we can see that Swedenborg's inverted dish idea embodies the current "air cushion vehicle" concept. The difficulty became not only how to supply a steady source of air upon which to suspend the vehicle, but how to maintain a minimal separation between surface and the vehicle so that the volume of air needed to replace bleed-off, was minimized.

Hard-sided structures achieved minimal success because the horizontal stability of the vehicle was too critical. If vehicle operation was over water, any distortion of the liquid surface would have a negative effect. As soon as the separation between the vehicle and the surface (termed "daylight clearance") grew great enough to allow more air to pass through, than the maximum capacity of the air source, the cushion effect ceased.

It was in the late 1950's that a breakthrough development made ACV's a truly viable transportation alternative. Flexible seals, or skirts, were employed around the periphery of the vessel to retain the air pocket. The effect was to minimize the daylight clearance while increasing the rough terrain capability.

Basically a seal bag is fabricated, roughly like a tire inner tube, upon which the vehicle platform is secured. Unlike an inner tube, the seal bag is not hard inflated, carrying only about forty pounds per square foot. It gives only passive resistance, just enough to hold in the air cushion, while readily deforming to wave undulation or terrain anomalies.

The seal bag actually gets its inflation air by sharing the source of the air cushion, the lift fan power module. Distortion of the seal bag merely spills the excess air back into the air cushion pocket. Once the lift fan power is cut, the seal bag deflates and the vehicle settles. The only real problem this presents is that the vehicle needs intrinsic buoyancy while in the

water under these circumstances.

THE MODEL

Everything we have been talking about in the background section has been dealing with the full sized ACV's. There is little difference in theory or execution when we are talking about the Kinetics 1/24 scale RC version of the SK-5 U.S. Army Combat Hovercraft.

I frequently use a review kit's assembly manual as an indicator to help judge the effort that has gone in to producing a specific model. Although I was informed that the manual I was provided was merely a preliminary, I found it to be more than adequate to get the job done. The only drawback came from separating the text and the drawings. I was constantly flipping through the booklet to check on the drawings to which the text referred. Joseph has assured me that he has intended to remedy that situation with a bonus of providing an assembly and operation video with future kits.

The best advice that can be given is to read through the sequential assembly steps three times before starting. It's just good practice. The model has been designed so that an adolescent can build it, but some adult supervision may be needed.

The body is vacu-formed UVEX, the Kodak version of Lexan. It's clear, like a model car body, so can be painted on the inside. This permits the high gloss finish of the UVEX to be retained no matter how poor the spray paint job is. I think this is a good idea.

The seal bag is fabricated out of spinnaker cloth, which is great, but nothing special. What is special is that the material is coated with a substance that reduces friction and wear. But don't ask what it is!

The lift fan ducting, body baseplate and tail assembly are all fabricated from styrene and there is Styrofoam flotation provided. All components are taped or screw fastened.

The assembly process was straightforward with two areas worth mentioning. Care must be taken when aligning and sticking the seal bag. We're using double sided carpet tape here, so you really have only one shot.

It really is fascinating, the simplicity with which the seal bag inflation is effected. The fan duct houses the fan blades of the lift motor, directing the majority of air volume downward into the air cushion pocket. The rest of the air is diverted left and right into openings slit into the nylon seal bag. There are no tight seals to the air inlets. It's all very passive. I had a hard time accepting the fact that the seal bag does not want to be over inflated.

The other phase that commanded most of my attention was wiring the circuitry. First of all, although there are three functions: lift motor, propulsion motor and rudder control. The lift motor runs all the time, so you only need a two-channel radio.

There is a lot of splicing going on, so Kinetics provides Quick Splice and crimp type connectors. It's the one main concession to the adolescent builder. I soldered most connections, however, as motor leads and radio-interference-preventing-capacitors required soldering anyway.

Layout of the electrical components takes some planning, because you don't want any obstacles to the battery. Follow their suggested receiver and speed control location, which is aft as far as possible. I secured most of the wiring along clean runs and out of the way with clear vinyl tape.

If you intend to use the SK-5 in the water (and who doesn't since the craft is amphibious?) make sure to bag the receiver and speed control. These components are hard to get to, once the kit is completed.

A couple of other comments concerning the assembly process:

- The antenna whip was missing from my kit.
- I had to shorten the rudder servo

continued on page 52

COUNT ON HITEC FOR TOTAL BATTERY MANAGEMENT

Let's face it. You've got better things to spend your money on than just another single purpose charger. You need to get your money's worth out of everything you buy for your hobby.

That's the whole idea behind the Hitec CG-325 multicharger. Not only does it quickly peak charge almost every battery in your arsenal, but it will also discharge and check for bad cells as well. It will cycle those 6 and 7 cell SCR packs of your favorite car, boat or plane and it will keep your receiver and transmitter packs in perfect running condition. And if your batteries run low while you're still having fun, it's the perfect field charger.

Nothing gets you back in the action more quickly or safely than the CG-325 multi-charger from Hitec RCD.

hitec RCD

- DC/DC Delta Peak Detection Charger
- 0.9 Amp-4.5 Amp Adjustable Charge Rate
- Discharge and Efficiency Test System
- 270-1800 mAh Capacity
- Automatic switch to trickle
- 4-10 Cell Charging Capability

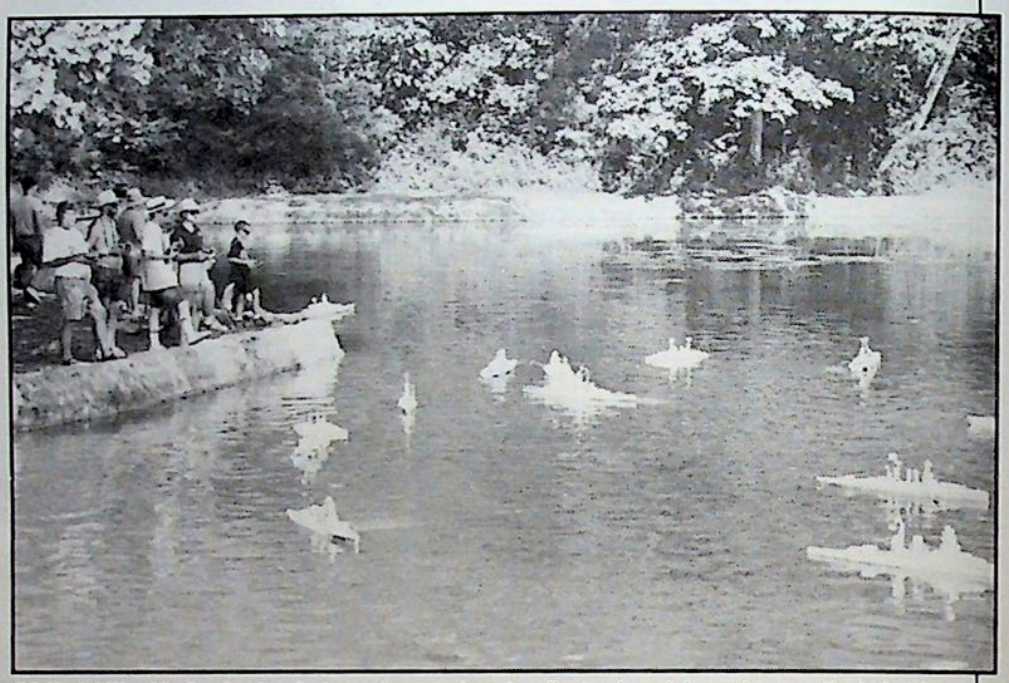
Also available: CG-320 multi-peak charger and the CG-315 peak charger for cars and boats.

Hitec RCD Inc.
10729 Wheatlands Avenue, Suite C
Santee, California 92071
(619) 258-4940 • Fax (619) 449-1002

BY STEVEN MILHOLLAND

IN HARMS WAY

PROTECTING ELECTRICAL GEAR FROM WATER DAMAGE WHEN WE REALLY DO SHOOT AND SINK OUR MODELS!



RC Model Warship Combat is a fast paced sport where two fleets of model warships really do battle for control of the local model pond. Here is a typical scene from the 1995 National Championships of the IR/CWCC in Springfield, Missouri.

This installment of "In Harms Way" completes the first full year of my efforts to educate you, the modeling public, about that "Magnificent Obsession" known to its participants as RC Model Warship Combat. In the first three segments, I attempted to disseminate information about such things as bilge pump installation, internal hull armoring and why it is necessary, and battle damage repair.

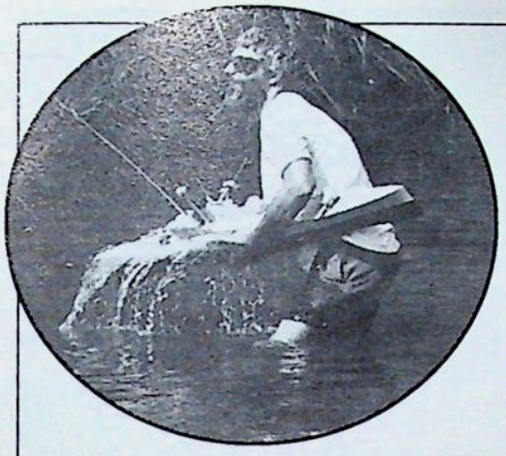
In this column, I wish to dispel fears about the subject that always seems to come up quicker than any other when people find out that in RC Warship Combat we *really do* shoot BBs at each other's models and they *really do* sink. That subject is internal gear (especially electrical gear) and how we protect it from water.

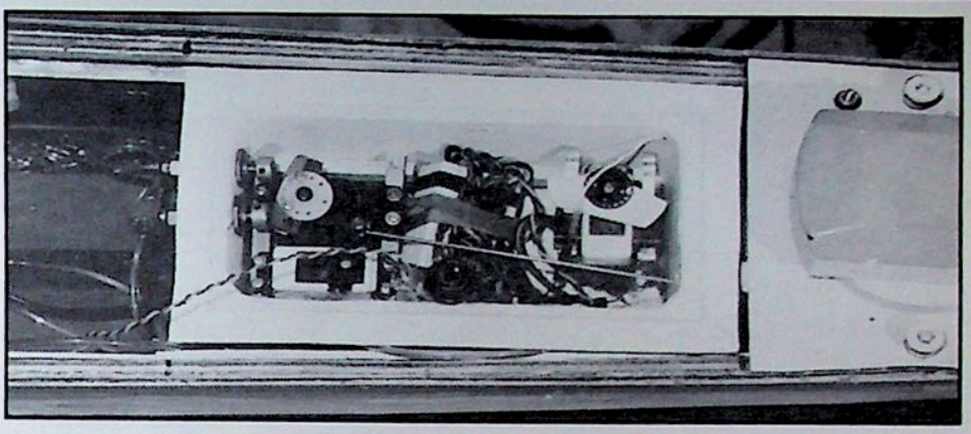
Most of the internal equipment in a combat warship model is by nature not harmed by contact with or complete immersion in water. The BB cannons and CO_2 supply system are relatively immune. As long as water is purged from the BB magazines after a sink and the interrupter mechanisms are lubricated to prevent rust, the armaments do fine. The same can be said for drive and bilge pump motors. As long as no water is left standing in the motor casings after use and the bushings/bearings are properly lubricated, they are not harmed. Wiring, switches and gel-cell batteries usually shake off water with aplomb.

We now come to those items that can be somewhat sensitive to water, the radio and NiCd batteries. Surprisingly enough, in the early days of this hobby, the late 70s and early 80s, radio gear was not protected AT ALL. The reasons for this are somewhat unclear and would take a lot of reminiscing that we don't have space for here. Needless to say, after a ship was sunk and then recovered, the captain always experienced a period of anticipation while dis-assembling and drying out his receiver, servos and NiCd batteries.

Normally, after re-assembling and installation, everything worked fine. This happened more often than not, though on rare occasion, someone would indeed "fry" a receiver or servo, necessitating replacement. All in all, the odds were greatly in favor of the gear working fine.

I am constantly amused by the horrified look on the faces of conventional

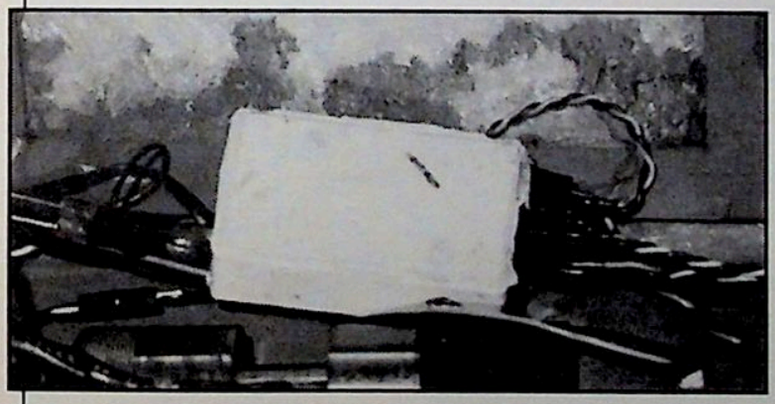


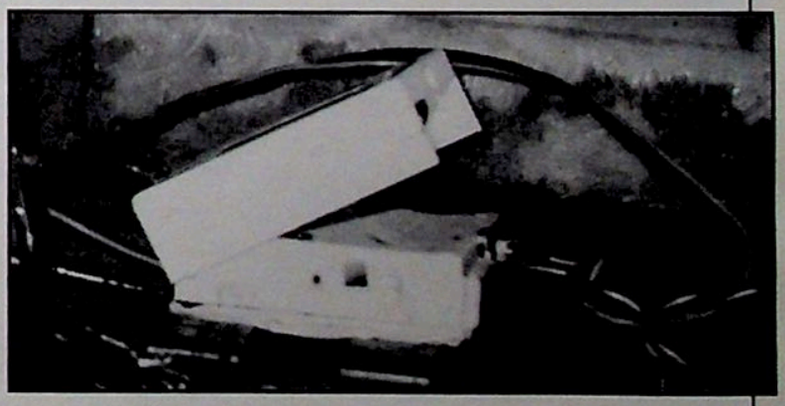


■ ABOVE LEFT: Captain Joe Kutz has just recovered his HMS Invincible from Davey Jones' Locker. Battling captains must protect radio gear and NiCds from water in the event of a sink happening.
■ ABOVE: A typical moulded plastic radio box with Plexiglass lid. This box, in author's German cruiser DKM Lutzow, contains receiver and three servos for control of throttle, rudder, and BB cannons.

modelers when I tell them that we actually let water come into contact with our radios and yet they still function normally. They cannot seem to understand how anything that uses electricity can still operate after getting wet. I still have and use two Ace R/C receiver and servo sets that I assembled from kits way back in 1981. These two radios have, between them, been completely submerged more than 35 times in several different ship models in the last 14 years — and both still work perfectly.

I also have to laugh out loud at the mention of so called "waterproof" servos that some manufacturers offer. My reply is that they are indeed perfectly "waterproof," right up until the point that they contact moisture. These servos are evidently designed to resist nothing more than a relatively humid day — they certainly cannot withstand the abuse that we give them in this hobby.





Receiver in author's French light cruiser, FS Marseillaise, is encased in a solid block of RTV molding silicone. Silicone can later be removed if necessary.

Along about 1984, the desire to protect radios from water really came into vogue in the hobby. Rather quickly, most competitors started installing their radios inside a box of some sort. This greatly improved the ability to get a sunken ship ready for another battle, but a radio box has a lot of drawbacks. Most notably, it takes a lot of room to get everything that is needed into a single box, taking a huge chunk of the available space in the hull — space that is needed for other things.

Battlers had to really shrink, cram and shoehorn the gear into the box, and then pry, stuff and bulldoze the box into a spot in the ship that still allowed all the other gear to fit in a way that still gave proper balance and ballast.

The other big drawback was accessibility. With all the servos encased within a box having a Plexiglass lid held down by 20 or so bolts, easy access was a joke. When you suddenly realize you need to adjust the output wheel on a throttle servo, and the CD has just announced that battle starts in three minutes, you have two choices. You can sit out the battle, or you can gamely attempt to remove 20 bolts, adjust your servo, replace 20 bolts, button down the decks and get launched before the whistle blows. Rottsa' Ruck !

The majority of battlers today still use a radio box of some sort to protect their radio and servos. In recent years, however, some battlers (especially those building ships on the smaller end of the spectrum) have been experimenting with techniques to protect a radio without a box. These techniques have been proving themselves to be just as effective in protecting the radio as a box, but still leave everything accessible. Here are a few of my favorites.

THE RECEIVER

Two of the most popular methods of protecting a receiver are to completely encase the PC board in either epoxy or RTV silicone.

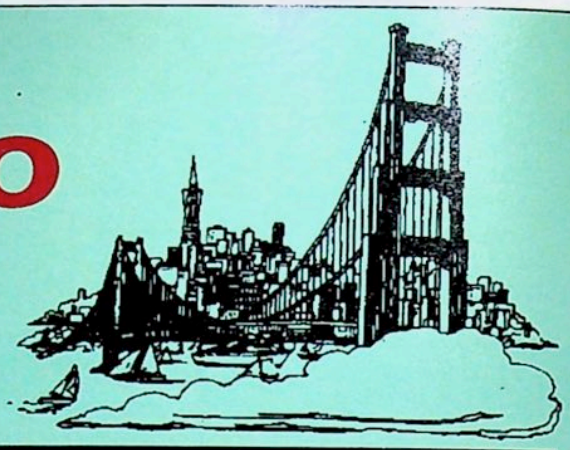
If you choose to use epoxy, I recommend 45-minute or 2-hour slow setting. To prevent excess heat buildup, do not try to do the job in one pour. Mix small amounts and pour after each successive cure.

Another method is to paint the epoxy onto the board, being sure to get complete coverage. Needless to say, epoxy is a permanent system. If you foresee the need to make adjustments to the tuning pots, press a pellet of paraffin into the adjustment screws of the pots before applying the epoxy. If necessary, a Dremel can carefully cut down to the paraffin, allowing a screwdriver in.

For silicone protection, I use Dow Corning's molding silicone #3110-RTV with catalyst #1, and their #200 fluid thin-

continued on page 54

THE 1995 SAN FRANCISCO GOLDEN GATE CONCURS



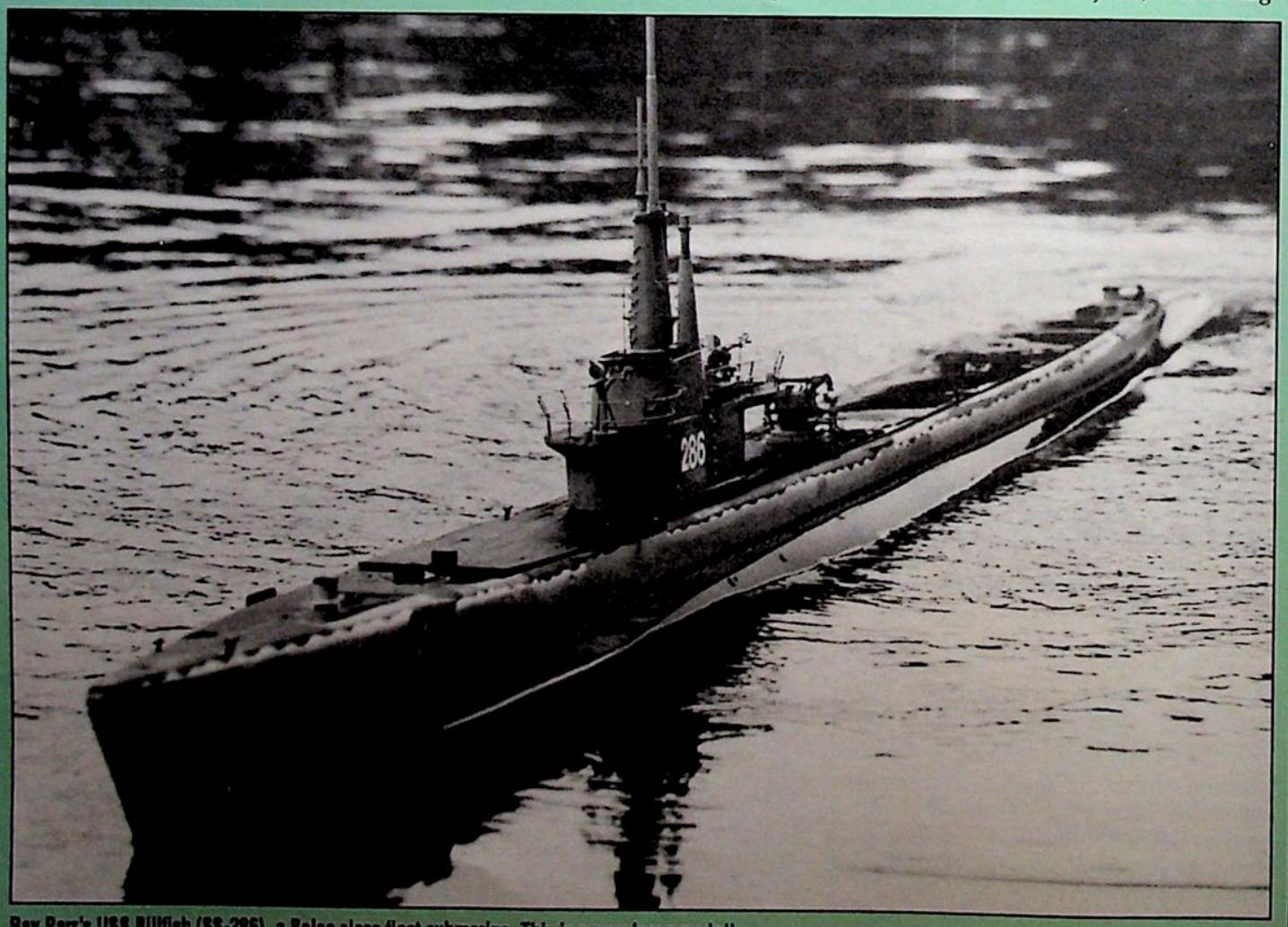
Concurs, Tugboat Regatta Combine To Make It A Busy Weekend For Bay Area Modelers

By Kurt Greiner / SeaPhoto

ON JUNE 3, 1995, The San Francisco Model Yacht Club, one of the nation's oldest model clubs, held its annual general regatta, the Golden Gate Concurs. Always a well attended event, with spirited competition, this year's event saw the combination, for the first time, of the Concurs with the club's annual tugboat regatta, the Crowley Cup, the following day. The feeling was that this would make both events more attractive to modelers who must choose which gatherings to attend.

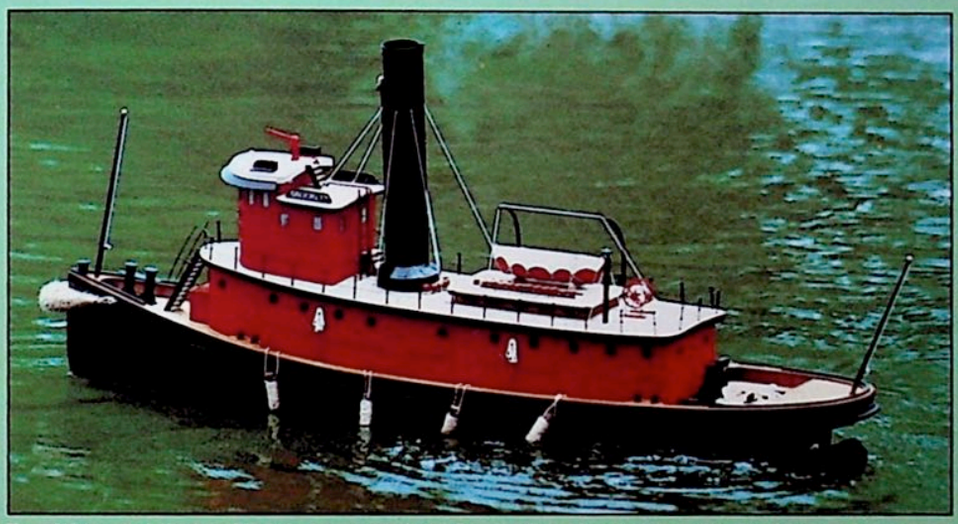
This strategy paid off handsomely, with entrants from as far away as England enjoying the generally pleasant weather of Golden Gate Park, the site of the club's lake. After a brisk morning, the fog parted, letting the sun shine down on this nice boating venue. Judging proceeded smoothly, and with about 40 entries the contest was over by 3 p.m., letting the participants enjoy a feast prepared by the members (or was it the members wives?...) Award ceremonies followed this meal, which in turn was followed by a raffle of some very nice prizes donated by model companies and local hobby shops. It is a rare modeler who leaves a San Francisco regatta without both his arms and stomach full!

Best of show went to Kay Tillman, builder of the *Crowley 22*, a local tug-



Ray Parr's USS Billfish (SS-286), a Balao class fleet submarine. This is a very large model!

The USS Walker goes on patrol. Ralph Glew has built a nice model of a Fletcher class destroyer in the anti-submarine DDE configuration.



Troy Waters of Harbor Models has mated the Dumas Brooklyn tugboat with Cheddar models steam plant to make a boat that is as pretty inside as out.

This model of the USS Missouri was brought by a shy builder who declined to be identified. A college student, he built this model from scratch in only eight months, explaining that it would have been faster had he not had a job as well.

boat legend. Kay's model showed his meticulous craftsmanship to its best, complemented by a fine display base that was a diorama by itself; it is a measure of the quality of the model that it was also voted modeler's choice. John Garis won best civilian with his *Coral Reef*, a pleasure boat with some of the best woodwork that I have ever seen on a model.

Einer Jensen's *Viking* was one of the most colorful models out on the water — a big, five foot representation of a Viking longboat propelled by oars. Especially popular among the spectators, the *Viking* took home the best novelty class award.

Model submarines were well represented at this meet by several members of the Subcommittee, an organization dedicated to the advancement of radio and static model submarines. Steve Reichmuth's *Skipjack*, based on the D&E Miniatures kit, took first place. The *Skipjack* performed flawlessly, and had fit and finish equal to the best. Steve also elected to use the D&E Miniature's pressure watertight box kit for the *Skipjack*, which makes installing working components much easier.

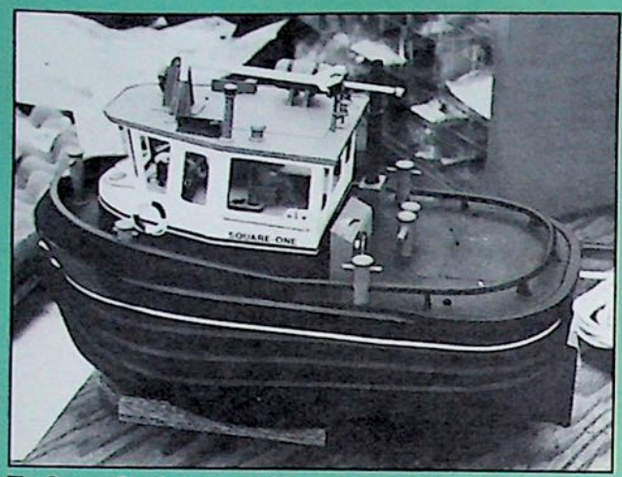
It is fair to say that in San Francisco, tugboats are the most competitive class; it is safe to say that Troy Waters is rapidly becoming the man to beat in California tug competition. Well, Troy should know how to handle a tug — in real life he is not only an experience harbor pilot, but he also owns Harbor Miniatures, a leading supplier of tugboat kits, hulls and accessories. Troy took home both first and third prizes with his *Barbara K* and *Puffin*, and placed sixth with his *Brooklyn*, built from the Dumas kit, using Cheddar Models fantastic steam engine for propulsion.

Many modelers saw the Cheddar engines operate for the first time, and they were impressive. Shown by Troy, who distributes them in the United States, and John Woodroofe, who flew over from the company in England to help, they were not only easy to operate, but machined works of art.

Woodroofe was kind enough to let me take a turn around the lake at the helm of his steam launch, and I was impressed by the power and responsiveness, which equaled that of an electric motor. Reversing, a tough thing to accomplish in most steam engines, was effortless, requiring no extra channel on the radio.

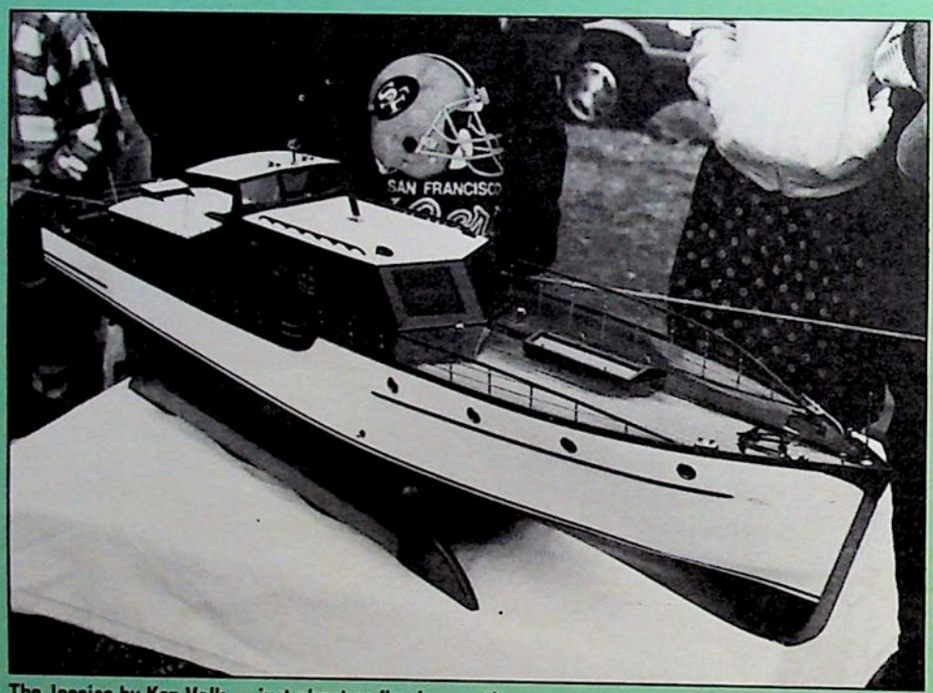
Woodroofe showed how easy the starting process was, using bottled stove fuel and a built in piezo-electric starter, and the vessel quickly built up enough steam for a twenty minute sail around the lake. Refueling takes even less time. I have been a strong believer in electric motors for many years, but the steam engines from Cheddar certainly give me a few ideas.

Military operational was won by prolific builder Bob Vienot, with his USCG

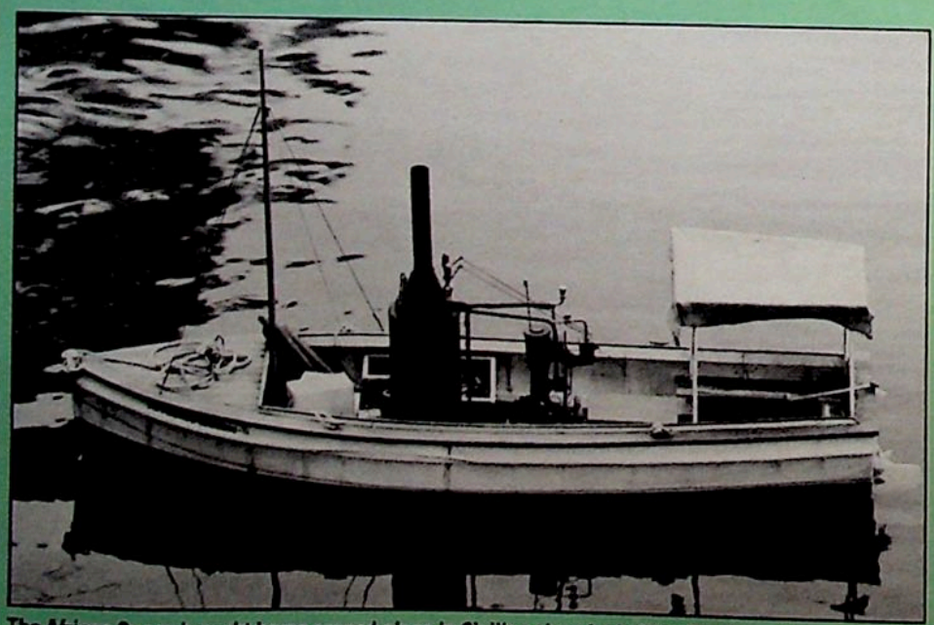


The Square One is a very stable and seaworthy model despite its small size, due to a large scale depth of the prototype. A great model for airplane trips!

Sacramento area modeler Steve Cowdin brought his popular USCG Tamoroa, a 1/48 scale cutter that, like the prototype, is based on a navy fleet tug (ATF).



The Jessica by Ken Valk — just about as flawless as they come.



The African Queen brought home second place in Civilian class for builder Don Fennell.

towboat *Wyaconda*, while the static side of things was one by Tome LaMantea with his *Hirohito's Headache* PT 110, a large scale model with some finely crafted crew figures. Ralph Glew's *USS Walker* was an interesting entrant into Military — a Fletcher class destroyer, converted into a specialized ASW ship. Ralph built his model on a Scale Shipyard hull, and scratch-built a nice Weapon Alpha to arm it.

For more information on participating in next year's regatta, write to: San Francisco Model Yacht Club, 450 Taraval St., Suite 235, San Francisco, CA 94116.

For more information on some of the suppliers mentioned in this article, send SASE to the following:

Submarine Kits and Fittings:
D & E Miniatures
Dept. USB&SM
835 Holly Hedge Ave.
Virginia Beach, VA 23452

Tugboat Kits, Cheddar Model Steam engines:
Harbor Models
Dept. USB&SM
17457 Appalachian St.
Fountain Valley, CA 92708

Dumas Brooklyn Tug *- write to Harbor Models, or:*
Dumas Products Inc.
Dept. USB&SM
909-AM E. 17th Street
Tucson, AZ 85719

Military Hulls and parts:
The Scale Shipyard
Dept. USB&SM
5866 Orange Ave. # 3
Long Beach, CA 90805

Remember, all suppliers appreciate inquiries when accompanied by a self-addressed, stamped envelope — you are much more likely to receive a prompt response. ***USB***

GAS • K&B • ROSSI • PICCO • FUTABA • MOTOR MOUNTS • RADIO BOXES • FUEL TANKS • RUDDERS & STRUTS

TRIM TABS • AUTO BAILERS • PROPS • RODS • DRUM VALVES • FLEX SHAFTS • CABLE COLLETS • B.H. HANSON ENGINES • STEAM ENGINES • SCALE BOAT KITS

It's A Hot Season For Cool Prices, Only At

Aeromarine Laminates INC.

RD 4 BOX 100 ROUTE 13N, SEAFORD, DE 19973, U.S.A., (302) 628-3944

Combo Pak Includes ALL Necessary Running Hardware and Fiberglass Hull

Challenger Deep Vee Series

		Hull Kit	Combo Pak
32" CHALLENGER *1st Place NAMBA Nationals*	For .21-.40 Eng.	$149.95	$337.00
44" CHALLENGER	For .67/.80 Eng.	$219.95	Nitro $458.00

1st Place NAMBA Nationals (Nitro) • 1st Place NAMA Nationals (Gas)
1st Place IMPBA Nationals (Nitro)

Sprint Cat Series

29" SPRINT CAT	For .21-.40 Eng.	$159.95	$342.00
35" SPRINT CAT	For .40-.80 Eng.	$219.95	$389.00

Predator OPC Tunnels

3.5cc PREDATOR *The Only Tunnel To Handle Modified Engines* $149.95
7.5cc PREDATOR *NAMBA SAW Record Holder* $189.95

COMBO PAK FOR OUTBOARD KITS
Includes: Boat Hull, Radio Box, Fuel Tank w/Tray, Fuel Line, Antenna Assembly, Prop, 4-40 Push Rods w/Clevis, Throttle Cable w/Clamp, Radio Box Plug, (2) Auto Bailers and Engine.
3.5cc (w/K&B 3.5 O/B Engine) $310.00
7.5cc (w/K&B 7.5 O/B Engine) $379.00

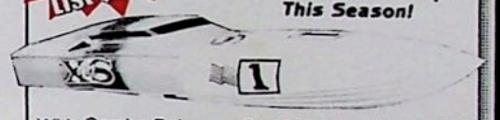
50" Sport X Hydro $339.95 Fiberglass Hull

NAMBA SAW Record Holder
Turbine or Open Cockpit

COMBO PAK (Gas Engine w/1/4" Drive) $475
COMBO PAK (Nitro Engine w/1/4" Drive) $531

Challenger 48" $285.00 List $319.95

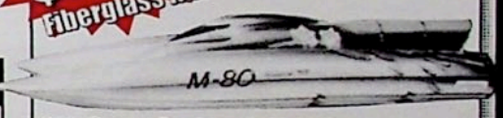
New! Sure To Be A National Champ This Season!



With Combo Pak ..... Gas $405 ..... Nitro $495

Sprint Cat 41" $269.95 Fiberglass Hull

F Hydro Point Winner
1st, 2nd, 3rd In Every Gas Hydro Competition



With Combo Pak Nitro $455.00 Complete
Gas $399.00 Complete

Need Running Hardware? WE HAVE IT.

★ FLEX CABLES W/STUB
- 18" x 187 ..... $18.00
- 18" x250 ..... $23.00

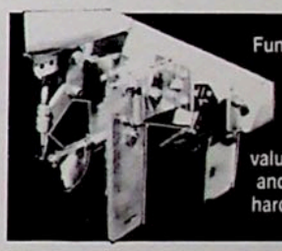
★ FLEX CABLE COLLETS
- Small $9.95
- Large $12.95

★ FIBERGLASS RADIO BOXES
- Box $21.95
- Seals ..... $5.00 Pr.
- Plug $2.95
- 1/4" Scale Servo Tray $6.95

★ HIGH RPM CONRODS
- .21 ..... $22
- .45 ..... $25
- .67/.80 ..... $28

★ K&B ENGINES & PARTS
★ FUTABA RADIOS
★ K&B and MC-9 PLUGS
★ MAC TUNED PIPES

WE HAVE IT ALL!
Call today for a rush order at the lowest prices.



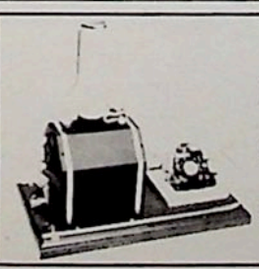
Functional, Lightweight and Durable, Aeromarine has the best hardware systems at the best value for DeepV's, Cats, and Hydros). Complete hardware kits available.

CALDER CRAFT SCALE HULLS

ITEM #	NAME	PRICE	ITEM #	NAME	PRICE
7000	Joffre	$269.69	7012	Imara	$515.00
7001	Northlight	$293.50	7013	Rhyhope	$263.75
7005	Talacre	$269.69	7014	Attacker	$132.95
7006	Celia	$174.69	7015	Brannaren	$331.25
7007	Garnock	$143.95	7016	Isis	$220.85
7008	Riverman	$172.49	7017	P.C.F. Boat	$220.85
7009	Cumbrae	$293.85	7018	Vulcano	$365.85
7010	Vigilant II	$139.95	7019	Milford Star	$285.00
7011	Sir Kay	$335.00	7020	Marie Felling	$548.55

CALDER CRAFT Picture Catalog $5.00

CHEDDAR MODEL STEAM ENGINES



PIPIT MARINE (Single Cyl.) $200.00
Pintail Marine Deluxe (Vee Twin) $486.00
Puffin Marine Deluxe (2 cyl. oscillator) $642.00
Pegasus Deluxe (V-4 engine) Fully assembled $1,299.00

Deluxe kits are fully machined and include ALL necessary parts.

CHEDDAR Picture Catalog $5.00

BUYER BEWARE

When you're at the top, imitators are a form of flattery - but when you're the buyer, imitators are thieves, robbing the consumer of the quality and value they deserve from an Aeromarine original.

NEED PARTS?

Call Aeromarine For Next Day, 2nd Day or 3rd Day Shipping at Discount Prices (VISA, MC, C.O.D.)

No Hassles - Just Fast, Knowledgable Service.

THE HASSLES STOP HERE

32 Fiberglass Hulls To Choose From!

CUSTOM BUILT HULLS AVAILABLE

See Participating Dealers or Call Aeromarine Today!

DEALER INQUIRIES INVITED
(302) 628-3944
Fax (302) 628-3945
See All Aeromarine Products At Your Hobby Dealer or Call Us For Our New 20 Page Catalog For Only $5.00

MasterCard VISA ACCEPTED

TRIM TABS • AUTO BAILERS • PROPS • RODS • DRUM VALVES • FLEX SHAFTS • CABLE COLLETS • B.H. HANSON ENGINES • STEAM ENGINES • SCALE BOAT KITS

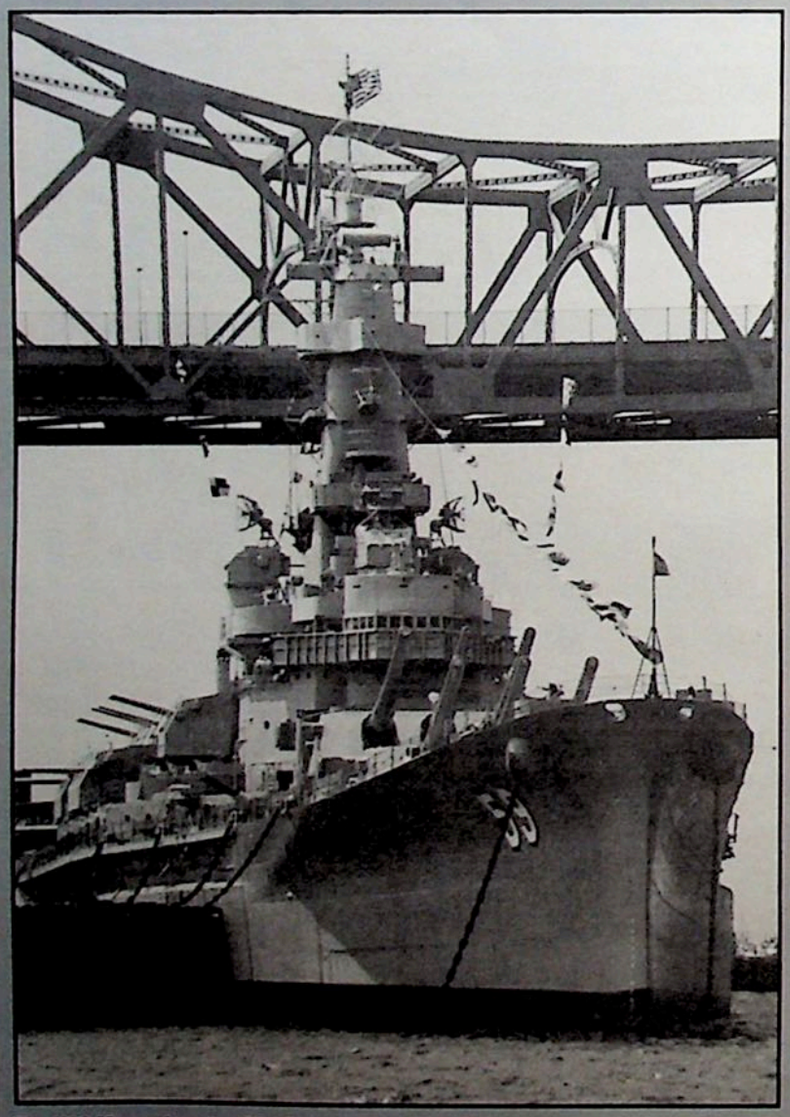
GREAT SAVINGS ON ENGINES, RADIOS & HULL KITS!

Welcome Aboard # 4

THE USS MASSACHUSETTS BB-59

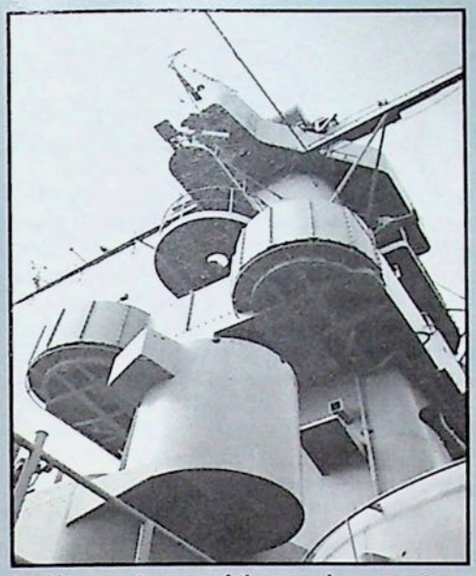
by SeaPhoto/Kurt Greiner

THIS ISSUE'S Welcome Aboard covers a member of our nation's historic preserved fleet — the *U.S.S. Massachusetts* (BB-59). A unit of the South Dakota class battleships, she had a distinguished service record and today serves on as a memo-

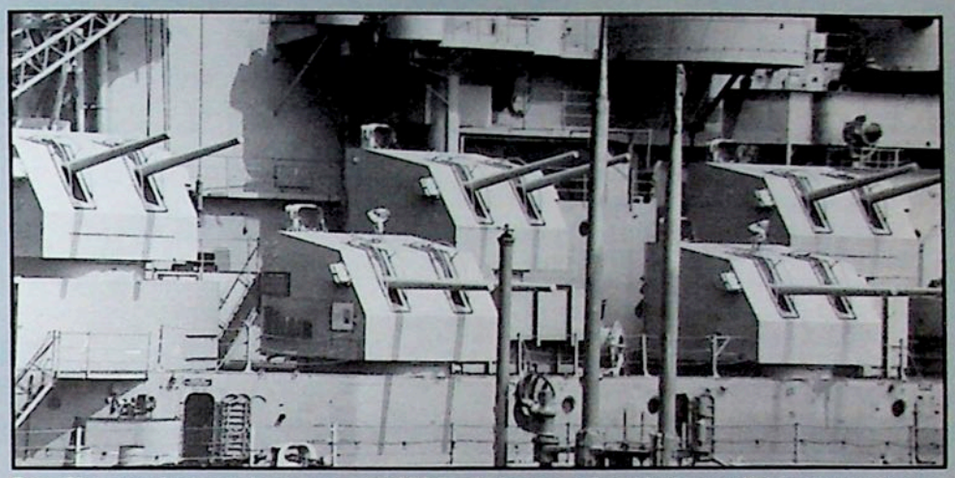


The USS Massachusetts (BB-59) seen from near her permanent home in Fall River, Massachusetts.

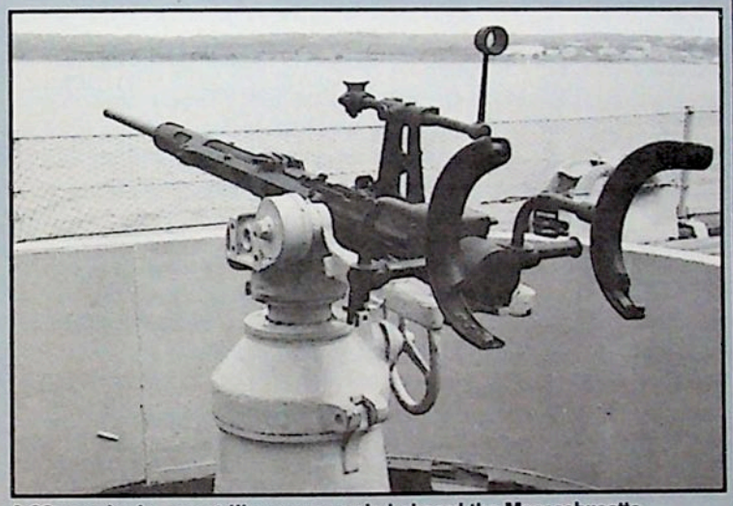
The business end of a battleship - six of her 16"/45 rifles that were the reason for her being.



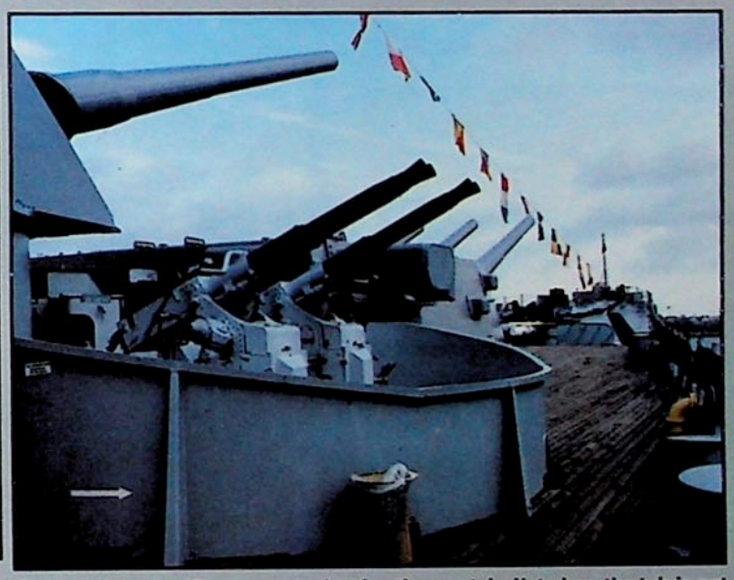
Looking up at some of the massive superstructure on this great dreadnought.



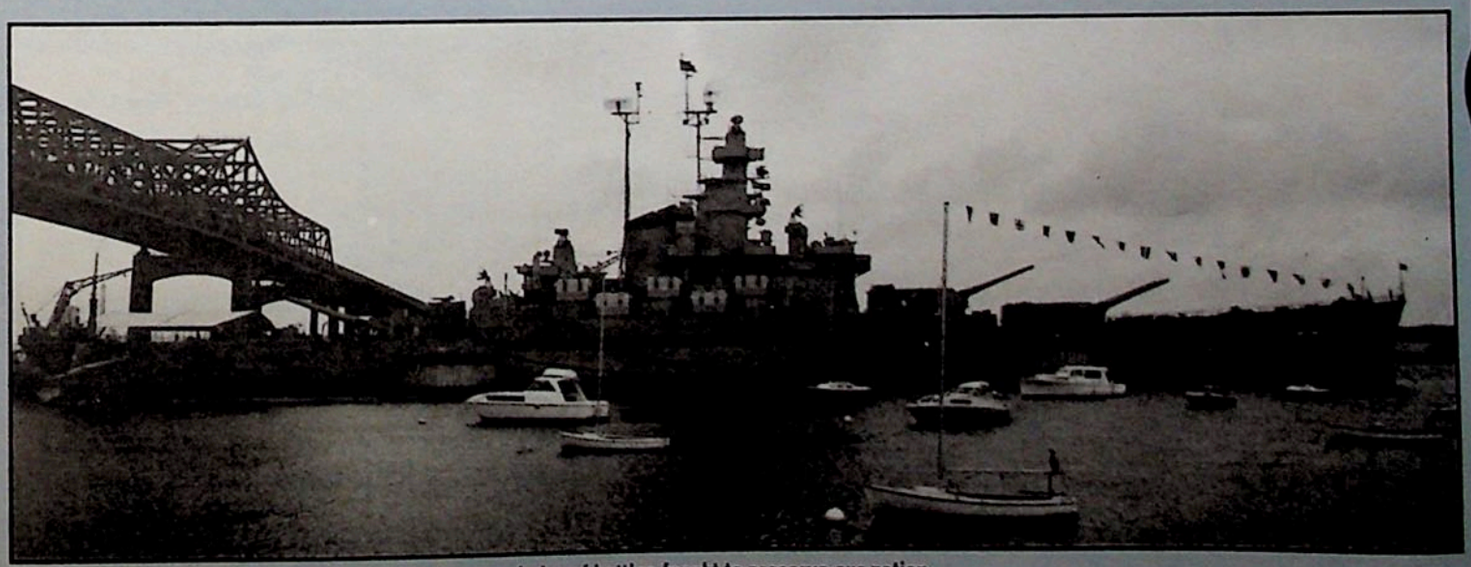
Part of her massive secondary armament of 20 five inch guns, a formidable gauntlet for any surface or air attacker.



A 20mm single mount like many carried aboard the Massachusetts.



Another view of a 40mm mount, showing the gun tub. Note how the tub is not a constant height; this is to protect the vessel from the fire of her own guns.



Now in a tranquil setting, the Massachusetts is a reminder of battles fought to preserve our nation.

PROBLEM: *NEED PLANS*

SOLUTION: *TAUBMAN PLANS SERVICE*

The world's largest retailer of ship modeling plans with the largest illustrated catalog. - SHIPS, BOATS, CRAFTS & VESSELS of every type from B.C. to 20th Century, as well as Warships and Submarines of most major nations - **PLUS** - Plans Handbook #2 from England - **PLUS** - a big selection of books **AS WELL AS ALL PUBLICATIONS FROM JEAN BOUDRIOT PUBLICATIONS, A.N.C.R.E. AND OMEGA.**

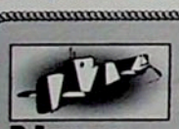
ALL THIS FOR ONLY $6.50
(NJ Res. Only – Include Sales Tax)

PLUS SHIPPING

Domestic - 1st Class $3.50; 3rd Class $2.00
Can. & Mex. - Airmail $5.00; Surface $4.00
S. Amer. & Eur.- Airmail $10.00; Surface $5.00
Pacific Area - Airmail $13.00; Surface $5.00

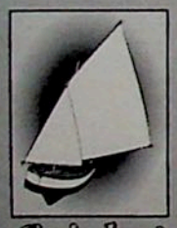
TAUBMAN PLANS SERVICE INTERNATIONAL
11 College Drive – #4G Dept. RCMB
Jersey City, New Jersey 07305
(When making inquires, please enclose a S.A.S.E.)

THE MOST UNIQUE WOODEN MODEL BOAT KITS AVAILABLE ANYWHERE!



Neon Tetra
12" SUB $15.95

Scorpion
8" RUNABOUT $19.95



Cricket
11" SAILBOAT $23.95

TOAD
8" TUG $22.95

EASY TO BUILD PROVEN PERFORMERS
• Rubber Powered • Pre-Shaped Hull • Pre-Cut & Drilled Parts • Brass, Copper & Stainless Hardware
GREAT FUN IN POOL POND OR SEA • ORDER YOURS TODAY!
$4.00 S&H Each, MD. Residents add 5% tax. Catalog $1.00

Seaworthy Small Ships
Dept. B, P.O. Box 2863
Prince Frederick, MD 20678

THE USS MASSACHUSETTS BB-59

rial to those who gave their lives for their country.

The South Dakota class consisted of four ships, the *South Dakota* (BB-57), the *Indiana* (BB-58), the *Massachusetts* (BB-59) and the *Alabama* (BB-60). They were the last American battleships built under treaty limitations, surpassed only by the unrestricted Iowa class in power. Although slightly slower than the previous North Carolina class, due primarily to a shorter hull, they were much better protected, perhaps the best of any treaty battleship built by any nation.

Carrying a main armament of nine 16-inch guns, they also had powerful secondary batteries. Their only real shortcomings were the lack of high speeds necessary for operation with fast carrier task forces, which led to inactivation after the war.

The *Massachusetts* was born, fittingly, in Quincy, Massachusetts, her keel laid on July 20, 1939. Completed nearly three years afterward, at a cost of over $75,000,000, she fired her first shots in anger against the Vichy French fleet at Casablanca in November 1942. Following that action, she was overhauled and sent to the South Pacific, where she participated in a wide variety of action, including many bombardments. According to Dulin and Garzke (information box), she steamed 225,000 miles, took place in 35 engagements, sank or damaged five enemy ships and destroyed 18 Japanese aircraft.

Today she lives a quieter life at Fall River, Massachusetts, a bit under two hours drive south from Boston. Although her crew at the memorial has its hands full from harsh New England winters, she is in a high state of preservation — a tribute to those who care for her.

On board are displays about life aboard the great dreadnought and her history. Access is open to much of the ship, including a turret, for those who wish to see inside and marvel at the size and complexity of these great machines. There is a display about PT boats on board as well.

Also at Fall River is a small fleet of other vessels, including PT Boats, the destroyer *U.S.S. Joseph P. Kennedy* (DD-850), and the submarine *U.S.S. Lionfish* (SS-298). Naval enthusiasts could easily spend a full day or more at this fine collection of America's naval heritage.

Often reading about history is dry and dull — names, battles and ships run together in a meaningless blur. With the Massachusetts, as with other preserved vessels, you can have a chance to do more than read or watch history — you can touch it, climb on it and experience a taste of what it was like to be aboard a great ship. Walking her teak decks, it is easy to imagine her underway, steaming into exotic waters to face fates unknown, with courage born of faith in country. A moving experience, and recommended to all.

Photos for this article, like all for the Welcome Aboard series, are drawn from

The USS Massachusetts — Ship Specifications

Displacement — 35,113 tons (light).

Length — 680 feet, 10 inches.

Beam — 108 feet, 2 1/4 inches.

Draft — (at light load) 28 feet, 7 inches.

Propulsion — Eight Babcock & Wilson boilers; four sets of G.E. geared turbines, 130,000 horsepower; four props. Maximum speed when new, 27.8 knots.

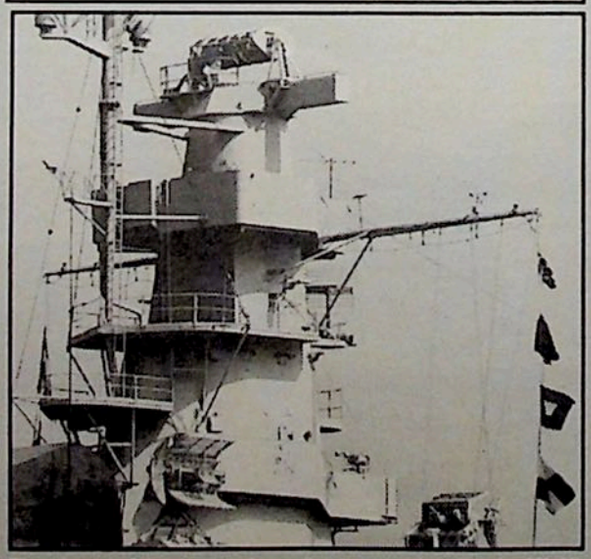
Endurance — 17,000 miles @ 15 knots.

Crew — 2,354 officers and crew.

Armament — Nine 16-inch, 20 five-inch, 72 40mm AA, 41 20mm AA (November 1945 figures).

Sensors — SK-2 air search radar, SG surface search radar, Mk 8 main battery radar, Mk 12 secondary battery radar, Mk 38 main battery director, Mk 37 secondary battery directors, others.

Builder — Bethlehem Steel Company, Quincy Massachusetts.



The aft part of the armored conning tower, showing the Mk 13 radar on top of the Mk 38 main battery range finder.

the archives of SeaPhoto, which offers extended sets for this and other ships. For more information and a catalog, send five dollars to SeaPhoto, Dept. USB, 1145 Oakwood dr., Millbrae, CA 94030. ***USB***

MODELING INFORMATION

PLANS — The first and best place to look for U.S. Navy ship plans would be The Floating Drydock (C/O General Delivery, Kresgeville, PA 18333). They have plans for this class of ships in several scales, with nice information in 1/96 scale. Also, camouflage, paint chips, armament drawing and much other useful information is available from this source.

BOOKS — The bible for U.S. battleships of this time would have to be *Battleships: US Battleships in World War II*, by Robert O. Dulin and William H. Garzke. Part of a trilogy covering all nation's battleships of that era, the book covers the North Carolina, South Dakota, Iowa, Alaska and Montana classes in exhaustive detail. This and many other interesting naval books are published by the Naval Institute Press (Annapolis MD). For further insights on the designs of all U.S. battleships, *U.S. Battleships, an Illustrated Design History* by Norman Friendman is also recommended.

MODEL KITS — Available in 1/720 scale from Revell, and in the waterline scale of 1/700. In the future, I would look for a larger scale resin model from one of the limited run manufacturers. My favorite source is Pacific Front Hobbies (14320 124th Ave. N.E., Kirkland WA 98034), a mail order firm that specializes in kits and resin of navy ships.

LARGE SCALE HULLS AND ACCESSORIES — The Scale Shipyard (5866 Orange Ave. #3, Long Beach, CA 90805 — catalog $6) has a 1/96-scale hull and superstructure casting for this class, which measures 85 inches in that scale. Also available are a variety of weapons and other parts from this long time manufacturer.

PHOTOGRAPHS — SeaPhoto has additional color photos available for the Massachusetts, with the Alabama following early next year. The Floating Drydock (see above) has nice 8x10 individual black-and-white photographs of this ship, taken during the WWII. Real War Photos (P.O. Box 728, Hammond, IN 46320) also specializes in black and white war-era photography.

When writing to a source it is a good idea to send a SASE, which increases the likelihood of a response. Be sure to mention that you found them through *U.S. Boat and Ship Modeler*!

PLANS BOOKS

FITTINGS

WE HAVE IT!

U.S. NAVY ENTHUSIASTS AND SHIP MODELERS — YOU CAN FIND IT HERE!

CAMO

Please send $4.50 for MAIN CATALOG. Send $1.00 for PHOTO CATALOG LISTING AND GUIDE.

THE FLOATING DRYDOCK

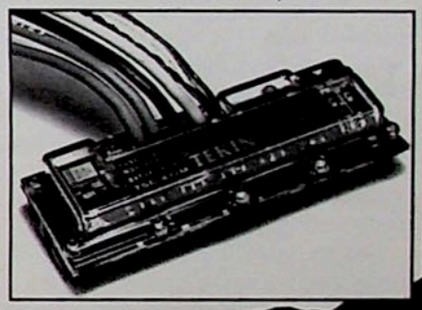
C/O GENERAL DELIVERY, KRESGEVILLE, PA 18333

TEKIN HIGH PERFORMANCE R/C ELECTRONICS

NAMBA RECORD HOLDERS

AM & FM MICRO RECEIVERS Small and light, to make your boat jump.

TSC 432M MARINE SPEED CONTROL Powerful 300 amp high frequency drive powers most boat motors up to 32 cells.



PEAK CHARGERS Dependable, automatic, and easy to use, they deliver a long high performance charge.

Send for a catalog SEE YOUR DEALER

MADE IN U.S.A.

TEKIN ELECTRONICS, INC.
940 Calle Negocio, San Clemente, CA 92673
(714)498-9518 FAX (714) 498-6339

Electrifying News from OCTURA® MODELS, INC.

Pioneer Producer of Proven, Precision, Performance Propellers for R/C Model Power Boats!

For electric powered boats, using direct-drive with .125 diameter propeller shafts, OCTURA now has available 10 metal propellers. These are intended for use on 540 and 05 motors as well as the special wind motors.

Install an OCTURA propeller on your direct-drive boat and you'll be amazed at the performance difference. Also available is a drive dog, the OC4D. All are left hand rotation unless otherwise noted.

Available in Silicon Brass, Beryllium Copper, or Aluminum at the same price!

540 motor: 0930, 1427, X427
05 twin motor: X430, X430RH
Cobalt 40: 1630, 1930
hot wind: X432
$8.95 each

hi torque: X435 ..... **9.25** each
hi torque: 0937/3 ..... **12.00** each
OC4D Drive Dog ..... **1.75** each

The R/C Model Boat Propeller People® OCTURA®

THE R/C MODEL BOAT PROPELLER PEOPLE...SINCE 1954.
Order direct only if not available from your local hobby shop.
Add $3.00 total for shipping. ILL residents add 8.5% sales tax.

OCTURA® MODELS, INC.
7351 N. Hamlin Avenue • Skokie, IL 60076

BY ELOY MAREZ

"COMPUTER" RADIOS HAVE ADVANTAGES

COMPUTER RADIOS, with their many operational features, have definite advantages, as anyone who uses one will tell you. So many, in fact, that once the relatively simple, but nonetheless initially intimidating setting up has been done, and it has actually been operated a few times, most of us would find it hard to go back to a lesser radio. But when it comes down to it, most of us will agree that the feature we like and appreciate the most is the ability to read control throw amounts, to make infinite adjustments to them, and to be able to duplicate them exactly.

Should you not yet have experienced one of these systems, let me explain the above. First of all, computer radios are not real computers — don't let them intimidate you. They use computer components and technology, and setting one up is no different from mechanically matching your boat to a non-computer radio.

The difference is that, instead of making all the required adjustments to the boat, you do it at the transmitter. By pressing a button! When it comes to setting the degree of control, the screen will indicate the percentage of transmitter control to servo movement that will occur as you operate the control. For example, let's set throttle.

It varies slightly from one to the other, but your screen will show "High - 100%." If, upon going to high throttle on the transmitter, you see that the engine throttle is opening too far, actually bottoming out as they do, obviously you have too much throw. Instead of fiddling with the throttle and servo clevis, and often settling for a compromise position, you push a button and watch the display read 99 - 98 - 97 - etc., until the throttle is open EXACTLY as you want it. No compromise.

The same procedure is now followed to set the low or idle position of the throttle. And then rudder throw is set in the same manner, with any degree of variation from left to right or vice versa, that you might find necessary.

The advantages are obvious, but that is not all. You have complete and visible control of all throws, variable by one percent. You can adjust everything exactly as your boat and your driving skills require — no having to try to compensate with control inputs. Well, this is all fine, if you have a computer radio, or have just hit the lottery, there being many for whom RC equipment has to take second place to the other necessities of life.

Well, I have good news for you — there are no substitutes for the failsafes and model memories found on computer radios, but what we just described, the ability to fine tune our controls, can be done with your older non-computer system, and a relatively inexpensive readily available device.

The Ace R/C "Datamaster" is easily the most useful instrument available to the serious R/Cer in setting transmitter-to-model controls; duplicates best features of computer radios.

Such an item is the Datamaster product of Ace R/C (P.O. Box 472, Higginsville, MO 64037-0472). Ace R/C produces a large number of electronic devices not otherwise available — from RC systems to chargers and testers. Some, like the Datamaster, are available as easy-to-assemble kits.

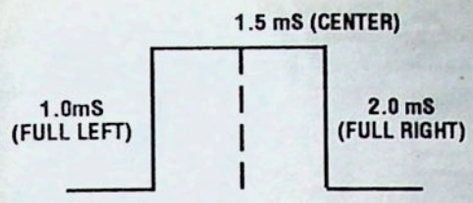
Before I can explain what the Datamaster does, and just how it does it, we first have to review the information that passes from your transmitter to the companion receiver, and in turn to the respective servo.

Your transmitter generates a series of precisely timed pulses, one for each control channel. The exact lengths can vary, but most systems now operate with a control pulse varying in length from 1,000 to 2,000 micro-seconds (one millionth of a second), with 1,500 micro-second corresponding to servo neutral. These values are also seen expressed as milli-seconds (one thousandth of a second - mS) in which case the figures will then be 1.0 - 1.5 - 2.0. Thus, with the control at neutral, the pulse length is 1.5 mS, and the servo is centered. As the control is moved, the pulse length will increase or decrease, and the servo will rotate a corresponding amount in the appropriate direction.

Everything that you do at the transmitter will affect this pulse. If you apply some trim one way or another, the pulse timing will change slightly from 1.5 mS. Say you add trim and the pulse length is now 1.55. If you operate the servo reverse switch, the pulse length will immediately change to 1.45 mS. If your transmitter is equipped with End Point Adjustments (EPA), those small pots that vary the total servo throw, as you rotate them you will see a change in the minimum or maximum value of the appropriate pulse.

Here is where the Ace R/C Datamaster comes in. One of its two functions is to read this pulse, which it does by simply being plugged into the channel that you wish to measure. In that respect, it differs slightly from the computer radio readout, in that it does not express the travel in percent, but in milli-seconds. The difference is inconsequential — you are given an easy to read digital display whose value will change as you make those critical transmitter adjustments.

The Datamaster reads the pulse length down to tenths. For this purist, this translates to having a two percent adjustment



The position of a servo is commanded by the length of its control signal, which varies from 1.0 to 2.0 milliseconds, with 1.5 mS being its center position. The "Datamaster" described in the text reads this pulse length and allows you to make and duplicate exact control positions and movements without the need to estimate.

margin. Actually though, if the adjustments on your transmitter are fine enough, you can adjust to one percent as the last digit will swing from one number to the other as the next higher digit is approached.

Let's take a look then at the practical application of the Datamaster. As at the beginning, you can adjust the throttle and/or the rudder, not only to a mechanical position, but also to one that can be read and recorded. Should you decide to try a different setting of one or the other control, you know exactly where you started, how much you moved it, and can then re-adjust minutely plus or minus while you look for that ultimate point.

You will find it a great advantage to be able to return to the starting point, should things get completely out of hand, or should you find that instead of making things better, the reverse happened. Without this visual reference, this process is actually haphazard and can be quite lengthy.

The Datamaster comes with a second useful feature. It can be used as a servo driver; i.e., you can plug a servo into it, and cause it to operate exactly as it will with your transmitter and receiver. That way, you don't have to pull equipment out of one boat or upset the settings you already have while you are setting up another one. In the original application explained, the Datamaster draws its battery power directly from the receiver; in this case you have to plug in a normal four-cell battery.

If your old and new boats are similar in type, and you expect that more or less the same control functions will be required, you can read and record the settings on the original, then duplicate them on the new one. When used as a servo driver, the Datamaster also displays the pulse as it is being generated internally, and which will have the same effect on your servo as did the one from the transmitter. Thus you can set up the new boat exactly — not approximately — but exactly, as the old one.

Should you operate more than one boat from the same transmitter, you can preset the controls every time before you launch each one, to include the proper trim. This is especially useful in competition, during which even the time to add a little bit of trim, can cost you valuable time.

The assembled and tested Ace R/C Datamaster is priced at $54.95. As mentioned, it is also available in kit form, at $44.95. Ace R/C grades it as being "moderate" in construction difficulty. That means that some previous electronic assembly experience on the part of the builder is recommended. This does not necessarily mean that one should have experience as a technician, merely that he or she know how to solder, can identify components with the guide furnished, and can read the easy to follow instructions. There is no calibration or adjustment required, nor is anything other than a soldering iron and normal hand tools required.

If you can assemble and operate a complex model boat, I would not hesitate to believe that you can also successfully assemble and use a Datamaster.

But that is not all the good news — there is an RF Interface, which when added to the basic Datamaster, allows one to read this informative pulse length information directly from the transmitter, without having to plug into the receiver. All that is required is clipping a wire onto the transmitter's antenna, and selecting the desired channel with a knob marked with the channel numbers.

Operation, from then on, is the same as for the original Datamaster. And again, no adjustment or calibration has to be made, things work properly from the beginning. There is a not to be forgotten catch though, the interface will work only with AM transmitters, and not with FM (PPM) or PCM.

The Datamaster RF Interface is priced at $19.95 assembled and tested, and $11.95 in kit form. Again, Ace R/C rates it as moderate in construction difficulty.

The Datamaster comes less the necessary connectors, so that you can install exactly those needed to match your particular RC system. Such connectors for all the popular brands are also available from Ace R/C, priced from $3.00 to $3.50. All Ace products are available from many hobby stores, or you can order direct. Orders only at (800) 322-7121.

So even if you are not yet ready for one of those exotic computer radios, there is no reason why you can't enjoy one of their primary advantages — consider adding an Ace R/C Datamaster to your control equipment. *USB*

MODEL BUILDER

- Superior Editorial Content
- Finest and Most Complete Construction Articles
- Plans Service
- New Products
- Product Reviews
- Contest and Show Coverage
- Monthly coverage on Soaring, Electronics, Old Timers, Free Flight, Electric Power, Helicopters

Canada subscriptions $35 for one year, $66 for two years, inc. GST. Other foreign, $33 for one year, $63 for two years inc. postage. All payments in U.S. funds drawn on U.S. Bank.

SUBSCRIBE NOW AND SAVE!

❑ New ❑ Renewal

Name_____

Address_____

City_____

State_____ Zip_____

❑ $25 for one year (12 issues)

❑ $47.00 for 2 years (24 issues)

MC/Visa/Discover

#_____

Exp. Date_____

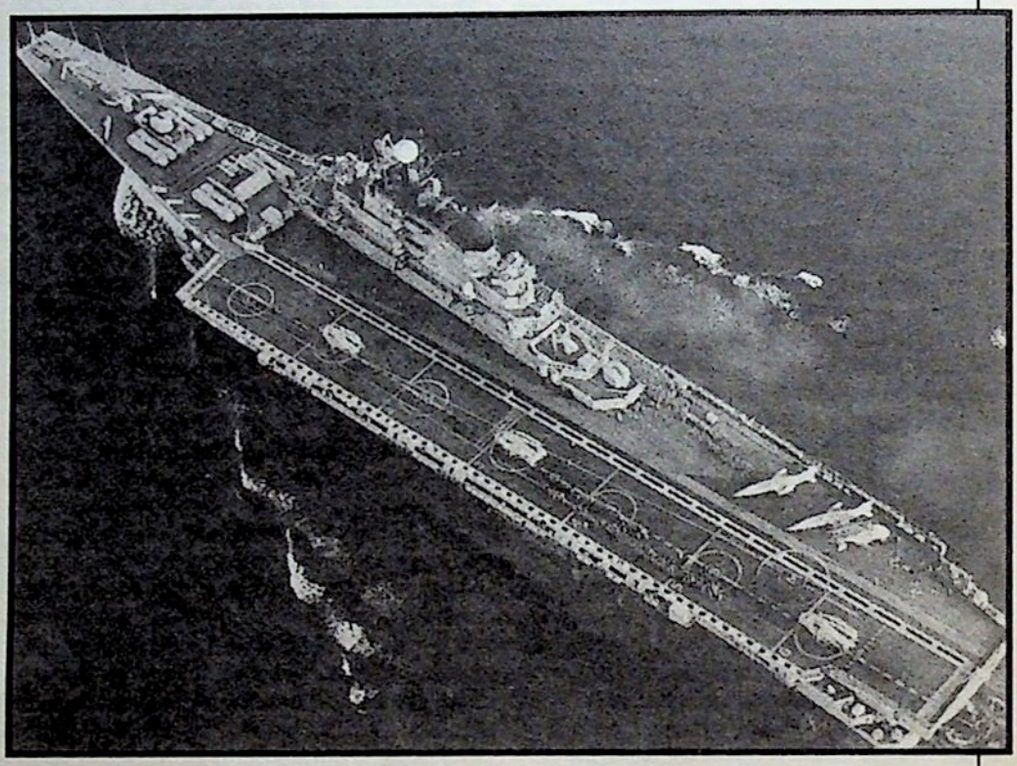
Signature_____

MODEL BUILDER
P.O. Box 2459
Capistrano Beach, CA 92624-0459

A POWERFUL WARSHIP

BY WALTER MUSCIANO

A LOOK AT SOVIET ASW HELICOPTER CARRIER/CRUISER



While the U.S. Navy continued its interest in AEW, the Soviet Navy's interest in anti-submarine warfare took a radical turn. The deployment of the U.S. Navy Polaris ballistic missile-equipped submarines in 1961 threatened the Soviet citadel; the important urban industrial triangle formed by Moscow, Kiev and Leningrad. This prompted the Soviet development of the helicopter-equipped Kresta-1 class large anti-submarine ship (Bolshoy Protivolodochny Korabl or BPK).

SOVIET KIEV CLASS CARRIER

Apparently the Soviet Navy felt that was not enough, because in December 1972 another unusual air capable ship was launched in the Nosenko Shipyard at Nikolayev on the Black Sea. This design has a 4 1/2 degree angled through-flight deck, capable of handling fixed-wing aircraft, although there are no catapults or arresting gear. The angled flight deck terminates at the forward end of the island, thereby freeing the forward portion of the flight (main) deck to be filled with lethal anti-aircraft, anti-submarine and anti-surface armament.

This multi-purpose ship has many of the capabilities of an entire U.S. Navy task force, including the aircraft carrier plus escorting destroyers and cruisers; all contained in this single air-capable ship!

The Soviet Kiev class has been called the most powerful warship class because, unlike the U.S. aircraft carrier, the Kiev class can mount offensive and defensive action without using its aircraft!

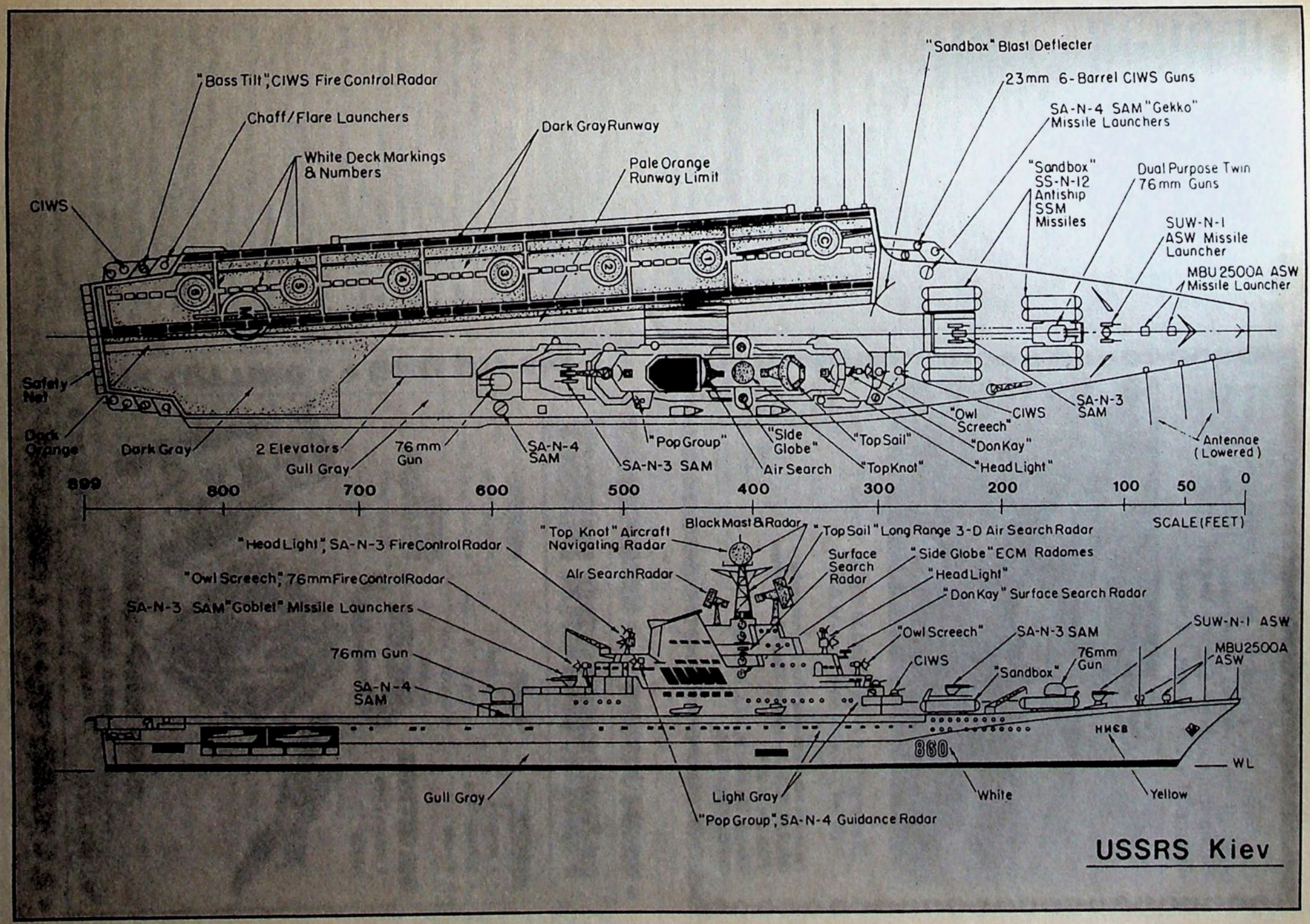
KIEV ARMAMENT

Fixed armament includes the following array of missiles and guns: two 12-compartment MBU-2500A ASW missile launchers at the extreme bow and one twin SUW-N-I launcher is immediately aft, and can selectively launch about (20) ASW FRAS-1 or SS-N-14 missiles fitted with either a nuclear depth charge or rocket-boosted ASW torpedoes. Between this launcher and the island are two stations of four Sandbox SS-N-12 surface-to-surface cruise missile launchers each. These missiles have a range of 260 miles and a speed of almost three times that of sound. The shipboard helicopters can be used as relay stations to guide the SS-N-12 missiles to their targets.

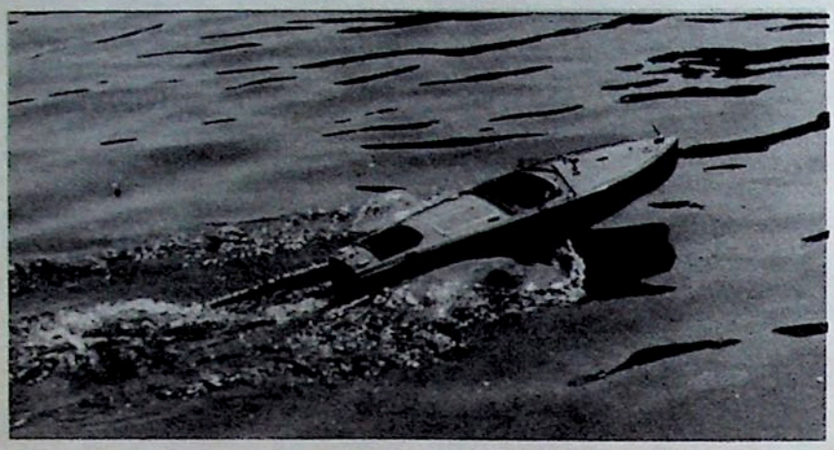
Located between the four forward SS-N-12 launchers is a 76-millimeter dual-purpose twin-gun mount, while another is located aft of the island.

An SA-N-3 twin-rail missile launcher, firing 72 Goblet SAM missiles having a range of 13 miles up to 70,000 feet, is located between the aft SS-N-12 launchers. A second SA-N-3 launcher is installed aft of the islands. Two twin-rail SA-N-4 launchers, firing 36 "Gekko" SAM missiles, are stowed in covered silos below deck and emerge for firing missiles that have a range of 10 miles at an altitude of 40,000 feet — with a speed five times that of sound.

Located beneath the aft SS-N-12 missile launchers are two groups of 21-inch torpedo launchers, five on each side, which can be used against surface ships or submarines. Finally, six-barrel 23 millimeter CIWS rapid-fire guns, capable of firing 3,000 rounds per minute, are distributed in eight locations on the ship. As can be seen, the Kiev class mounts a truly formidable array of fixed armament.


"Sandbox" Blast Deflecter
23mm 6-Barrel CIWS Guns
SA-N-4 SAM "Gekko" Missile Launchers
"Bass Tilt", CIWS Fire Control Radar
Chaff/Flare Launchers
Dark Gray Runway
White Deck Markings & Numbers
Pale Orange Runway Limit
"Sandbox" SS-N-12 Antiship SSM Missiles
Dual Purpose Twin 76mm Guns
CIWS
SUW-N-1 ASW Missile Launcher
MBU 2500A ASW Missile Launcher
Safety Net
Dark Orange
Dark Gray
2 Elevators
Gull Gray
76 mm Gun
SA-N-4 SAM
SA-N-3 SAM
"Pop Group"
"Side Globe"
Air Search
"Top Sail"
"Top Knot"
"Owl Screech"
CIWS
"Don Kay"
"Head Light"
SA-N-3 SAM
Antennae (Lowered)
899
800
700
600
500
400
300
200
100
50
0
SCALE (FEET)
"Head Light", SA-N-3 Fire Control Radar
"Top Knot" Aircraft Navigating Radar
Black Mast & Radar
"Top Sail" Long Range 3-D Air Search Radar
Surface Search Radar
"Side Globe" ECM Radomes
"Head Light"
"Owl Screech", 76mm Fire Control Radar
Air Search Radar
"Don Kay" Surface Search Radar
SA-N-3 SAM "Goblet" Missile Launchers
"Owl Screech"
SA-N-3 SAM
SUW-N-1 ASW
76mm Gun
CIWS
"Sandbox"
76mm Gun
MBU2500A ASW
SA-N-4 SAM
860
WL
Gull Gray
Light Gray
White
Yellow
"Pop Group", SA-N-4 Guidance Radar
USSRS Kiev

The most recognized of all the mahogony speed boats of the 1940-50's, the classic 19' Dual Cockpit Racing Runabout by Sterling Models, struts her stuff with the M.A.C.K. Power Package.



Sterling Kit # B-29M and M.A.C.K. Power Package # B29-C -- available from M.A.C.K.

For further information send $4 for complete catalog to:
M.A.C.K. Products Model Marine
P.O. Box 464
Long Branch, N.J. 07740
(908) 870-2966

DEALER INQUIRIES INVITED!

VISA & MASTERCARD ACCEPTED
($50.00 MINIMUM PURCHASE)

▪ VACU-FORMING ▪ ▪ VACU-FORMING ▪

▪ POLISHING ▪ ▪ POLISHING ▪

▪ DIE CUTTING ▪ ▪ DIE CUTTING ▪

MANUFACTURE DIRECT

AIRCRAFT
- Canopies
- Wheel Parts
- Cowls

CARS
- Car Bodies 1/8 to 1/4 scale
- Sprint Cars *(Bodies)*

MARINE
- Boat Hulls
- Nitro and Gas

DIE CUTTING
Custom Dies Made

METAL POLISHING
Brass and Aluminum

ENTERPRISES

TELEPHONE
702-870-0216

5000 W. Oakey - E8
Las Vegas, NV 89102

FAX
702-870-8378

▪ R. C. HOBBIES MFG. ▪ ▪ R. C. HOBBIES MFG. ▪

KIEV AIRCRAFT COMPLEMENT

The air group comprises 18 "Hormone A" helicopters and 12 Yak-36 jet-powered VTOL fixed-wing aircraft. The Ka-25A helicopters can deliver ASW torpedoes as well as provide long-range missile guidance, while the Yak-36 can drop depth charges, launch anti-ship missiles and also fire AAM missiles at intruding aircraft.

The SS-N-12 missiles are intended to play the same role for the Kiev as do U.S. Navy attack/strike aircraft for supercarriers.

KIEV CLASS DATA

Four of the Soviet multi-purpose through-deck cruisers, *Kiev, Minsk, Novorossiysk* and *Kaku*, were constructed at the Nicolayev Shipyard. The ships displace 36,000 tons standard and 42,000 tons full load with a draft of 25 to 30 feet. Overall length is 899 feet and the hull beam at waterline is 105 feet. Overall width over the flight deck is 157 feet, 6 inches, while flight deck length is 607 feet.

Four steam turbines are geared to four propeller shafts and total 180,000 shaft horsepower. Maximum speed is 32 knots, while the range at 18 knots is 13,000 miles. Complement is 2,500.

KIEV ELECTRONICS

The unusually large combined island and boiler uptake/stack was dictated by the ship's extensive search and fire control radar such as:

— "Top Knot" advanced precision-approach radar;

— "Vee Bar" high frequency communications traffic;

— "Top Sail" air search radar;

— "Top Steer," "Top Pair" and "Head Net-A" air and surface search plus missile system target acquisition and Ground Controlled Intercept (GCI);

— "Head Light" radars, mounted at the forward and aft ends of the island, plus a rotate-able "Trap Door" dish antennae is also used for missile guidance;

— "Owl Screech" 76 millimeter gun fire control radars are located under the "Head Light" radars;

— "Pop Group" radar for the SA-N-4 guidance;

— "Punch Bowl" dish antennae within a radome used for SS-N-12 missile target data acquisition;

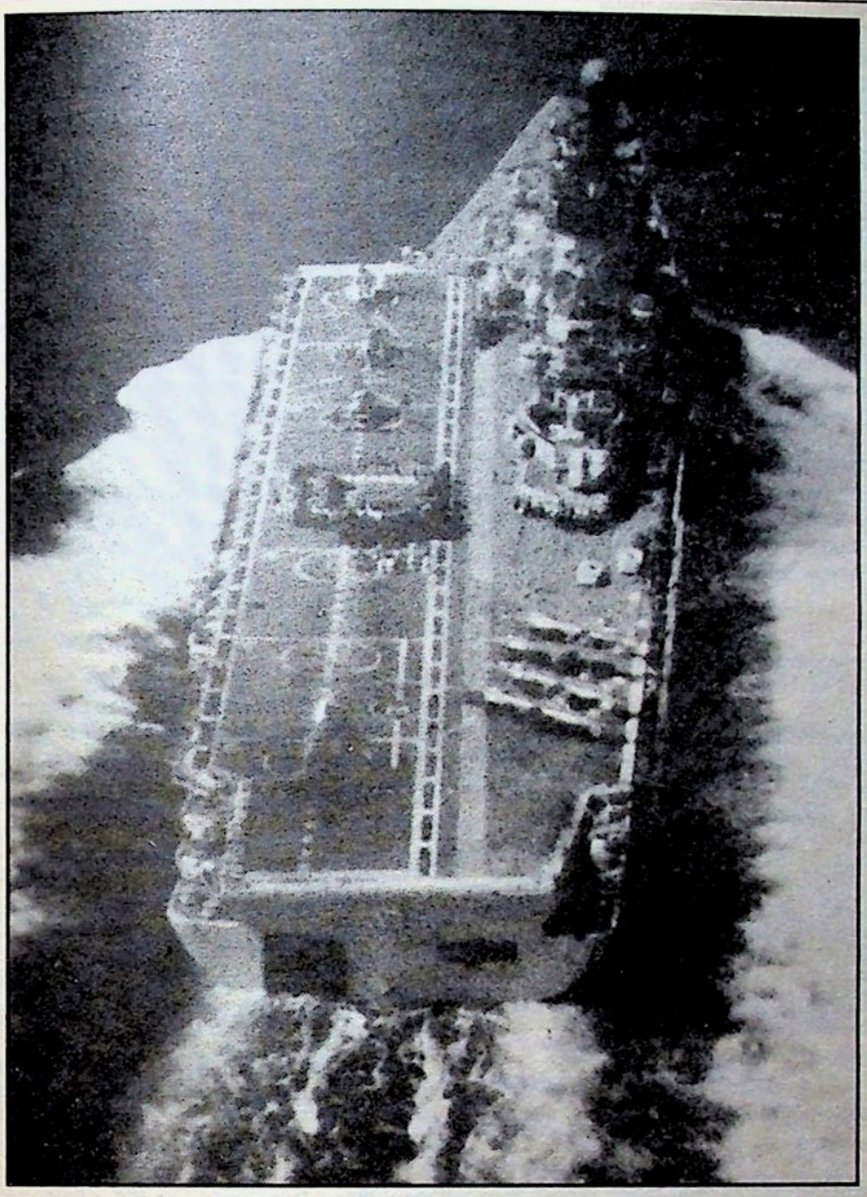
— four "Bass Tilt" 23 millimeter CIWS fire control radars;

— one "Don Kay" radar and two "Palm Frond" units serve both navigation and surface search;

— "Bob Tail" radio sextant is used to control VTOL landings;

— and "Side Globe" ECM radomes are strung vertically, four on each side of the mast.

The names given to the foregoing electronic equipment are those coined by



NATO.

A bulbous bow houses a low frequency bow sonar transducer or a large passive sonar array, while variable depth sonar (VDs) is housed behind two transom doors.

The fourth Kiev class carrier, *Baku*, was fitted with more advanced electronics including a large drum-shaped radar antenna and billboard array panels on the sides of the island.

FOD VACUUM

The Soviet Navy has developed a large self-propel led vacuum cleaner to clear the Flight Deck of FOD (Foreign Object Damage).

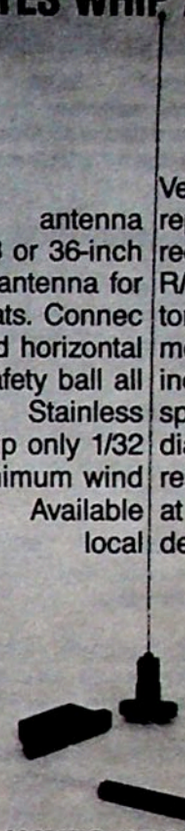
KIEV CLASS POWER PROJECTION

The multi-purpose Kiev class carrier/cruiser ships possess a limited aviation capability when compared to a U.S. Navy carrier of similar size; however, the Soviet ships have an abundance of ship-related weaponry. The Kiev class is capable of independent strike cruiser operations that would normally require a multi-purpose task force.

Although initially called a "Bolshoi protivolodochny kreyser" or large anti-submarine cruiser, the Kiev class aircraft carrier/cruiser is potent enough to challenge the western powers' control of SLOC because this innovative design is much more than a home defense anti-submarine cruiser. Deployment of these ships in international waters would have provided Soviet surface forces protection from air attack which they did not have in the past. ***USB***

The foregoing text, drawing and photo are excerpts from the new book, WARBIRDS OF THE SEA, *a comprehensive and definitive history of the aircraft carrier and shipboard aircraft which includes over 800 photos and 94 drawings. The 8-1/2x11, 592-page book was written and illustrated by Walter A. Musciano and is published by Schiffer Publishing Ltd., Dept. USB, Atglen, PA, 19310. Suggested retail is $49.95 + $2 S&H.*

HAYES WHIP ANTENNA



Vertical whip antenna replaces any 18 or 36-inch receiver antenna for R/C cars and boats. Connectors, vertical and horizontal mounts and safety ball all included. Stainless spring steel whip only 1/32 diameter for minimum wind resistance. Available at your local dealer.

HAYES PRODUCTS
14325 Commerce Wy.
Garden Grove, CA 92643

SPECIALISTS IN THE AGE OF SAIL

THE DROMEDARY

has rapidly become the LARGEST company in the UNITED STATES which is solely devoted to providing only the materials required by the MODEL SHIP BUILDER.

In order to be the only FULL SERVICE firm for the ship modeler, we also offer a complete line of books, tools, rigging and fittings, kits from the U.S. and plank-on-frame from abroad, woods, and all of the advice that our experienced staff willingly offers.

* OUR ALL NEW, No. 15 CATALOG IS HERE! *

SIGN ABOARD
CATALOG/ADVISORY SERVICE
$6.00 POSTPAID
$7.00 OUTSIDE USA

THE DROMEDARY
SHIP MODELER'S CENTER
6324 Belton Drive
El Paso, Texas 79912
(915) 584-2445

Visa and Mastercard accepted

BOATS

No. US1921 KITTY CAT $6.00
Cute little two-channel catamaran motorsailer by Graham Goodchild. Simple sheet balsa construction, 15" LOA, excellent beginner's project.

No. US4911 BOLT-A-BOAT 3.5 TUNNEL $14.50
Removable/adjustable-sponson, national champion and record holder. Foam and plywood construction. Designed by Jerry Dunlap.

No. US2911 MISS ROCK $11.00
Electric 1/16-scale Unlimited by David Frank uses the same 05 drive system as his high-performance Electrorigger hydro.

No. US1912 HMS SHEFFIELD $19.00
Heavy cruiser, 1:144 scale, 54-inch L.O.A., for RC combat. By Tom Jass.

No. US1911 ELECTRORIGGER $12.00
Fast electric hydro for 05 motor, six to eight cells, 30-35 mph. Designed by David Frank.

No. US4901 EVARTS DE-5 $17.00
Electric powered RC model of a WWII Destroyer Escort, 45 inches long, 5/32"=1' scale. By Cal Smith.

No. US3901 KINGFISHER $14.50
Electric powered Jersey Coast Dragger fishing boat, 1/2"=1' scale, 34" L.O.A. By Bob Nelson, reprinted from the May 1958 "American Modeler."

No. US3902 HAPPY HARRY $6.00
Graham Goodchild's cute, little RC rowboat powered by a sculling crewman, 11" L.O.A.

No. US2901 RC SAILING KETCH $19.00
Complete plans (four sheets) for building a small electric, auxiliary powered ketch. Walt Musciano.

No. US1901 (28) PICKET BOAT $17.00
No. US1901 (38) PICKET BOAT $22.00
An RC scale Coast Guard utility vessel. Plans are available in both 1"=1' (38" L.O.A., Plan No. US1901 [38] and 3/4"=1' [28" L.O.A., Plan No. US1901 [28]) scale. Designed by Bill Baughman.

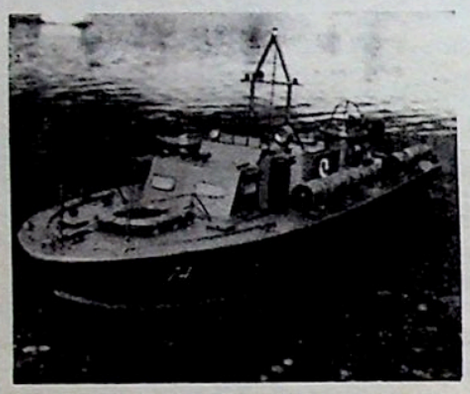
No. US1902 EXPLORER $6.00
Easy-to-build electric powered dive support vessel for three-channel RC. Lowers and picks up a diver. L.O.A. is 15-1/2 inches. By Graham Goodchild.

No. US4891 OSA MISSILE BOAT $12.00
Missile firing, scale RC Russian attack boat, OSA class, for electric power and two or three-channel radio; 3/4"=1" scale, 30" L.O.A. Designed by Walt Musciano.

No. US3892 PUFF $30.00
Fred Lehmberg's quarter-scale model of a 16-foot steam-powered bay launch, for RC steam or electric power. Four sheets.

No. US3891 VACUUM TABLE $8.50
For the do-it-yourselfer, this is a handy tool for molding of parts from sheet plastic. By Ron Williams.

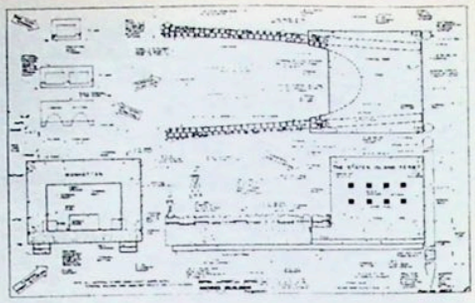
No. US2892 SOLAR SYSTEM $8.50
Interesting experimental 23" catamaran for solar cell power and rechargable pen cells for two-channel RC. All-balsa construction. By Graham Goodchild.



No. US2891 NAVY PT BOAT $12.00
Built on Dynamic Models' 1/2"=1' scale, 39-inch fiberglass hull. Remainder of construction is balsa and ply. By Art Bauer.

No. US4883 SEARCHER SUB $6.00
Graham Goodchild's small electric powered, two-man, 15" non-scale RC submarine of simple design and construction. Requires three-channel radio.

No. US4882 PEA POD SAILBOAT $14.50
Full size deck and side patterns, plus keel, rudder, etc., of Tom Protheroe's original 36-600 design plus hop-up modifications by Ken Cashion.



No. US4881 FERRY TERMINAL $7.50
Goes with the designer's Staten Island Ferry (Plan No. US3881) for docking maneuvers, but can be used with any boat of similar size. By Walt Musciano.

No. US3883 BIG BUNKER BOAT, 2-sheet plan $25.00, second sheet to build your own wooden hull. 36" Bunker Boat enlarged t60" L.O.A. 1-sheet plan $15--contact Hartman Fiberglass RC for fiberglass hull already built.

No. US3882 CHALLENGER $9.50
An RC scale model of the deep-vee ocean racer which set an Atlantic crossing record in 1986. Scale is 3/8"=1', L.O.A. 26", for 05 electric power. By Graham Goodchild.

No. US3881 FERRYBOAT $14.50
Electric RC scale model of the Staten Island ferryboat "Miss New York." It's 33" L.O.A., built to 1/8"=1" scale. By Walt Musciano.

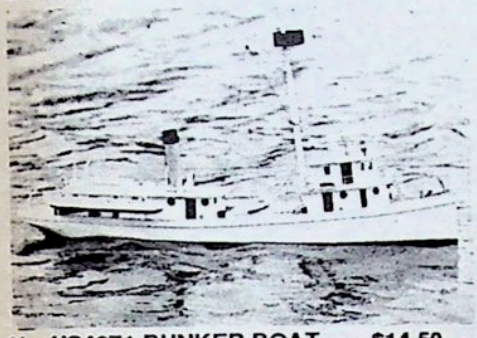
No. US2881 WHIRLWIND $10.50
Here's something unusual: A wind-driven turbine powered catamaran! Novel RC model needs only one-channel (for rudder). Graham Goodchild.

No. US1882 LIGHTNING $14.50
Plans consist of patterns only for this big 1/4-scale racing sloop. Order complete dimension plans from International Lightning Association, 808 High St., Worthington, OH 43085.

No. US1881 3.5 TUNNEL $10.50
Jerry Dunlap's all-wood tunnel racing boat for 3.5 outboard power. Plans include full-size patterns.

No. US4873 SOLAR WANDERER $6.00
A little (15-inch L.O.A.) sorta scale European type canal cruiser powered by solar cells. One channel RC required for rudder. Graham Goodchild.

No. US4872 7.5 TUNNEL BOAT $17.00
A fast 31-inch all-plywood tunnel boat for 7.5 outboard power. Plans also show dimensions for an 11cc version. Designed by Jerry Dunlap.



No. US4871 BUNKER BOAT $14.50
Scale seagoing fishing trawler for RC and electric power, 36" L.O.A. Designed by Frank Lashek and Cal Smith. Originally presented in "Young Men" magazine, 1956.

No. US3874 SCORPIO $6.00
Here's an electric powered mini RC aircraft carrier that catapult-launches, and then retrieves two aircraft! About 21" long, requires a three-channel radio. By Graham Goodchild.

No. 10831 RUSSIAN MISSLE BOAT $6.00
Missile firing, scale Russian attack boat, OSA class. 2 to 3 channel. By Walt Musciano.

No. US3873 RC STEAM LAUNCH $12.00
Kilburn Adams' natural finished, mahogany planked, 40-inch L.O.A., "African Queen" style steam launch with fringed "Surrey" top.

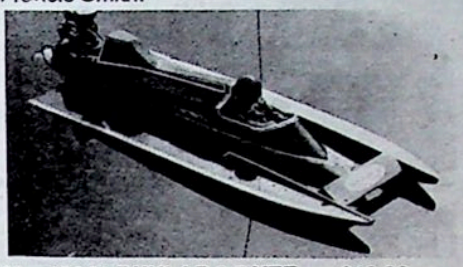
No. US3872 ELECTRIC SKI CRUISER $10.50
A modified Deep Vee, plywood constructed RC racing boat for 05 electric power. L.O.A. is 22-inch. By Jerry Dunlap.

No. US3871 MESSENGER $16.00
An all-wood Chesapeake Bay Sharpie for static display, or radio control of rudder only. L.O.A. 48-inch. By Tim Miller.

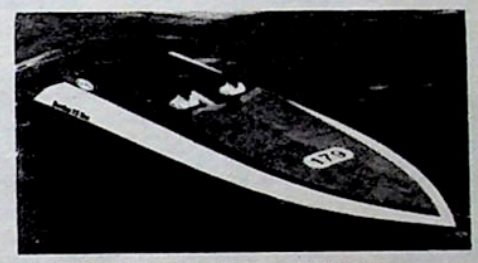
No. US2873 CHINESE JUNK $6.00
Thismodel is only 16 inches long, but uses two-channel RC for unusual sail control plus rudder. Inexpensive to build. Graham Goodchild.

No. US2871 SPORT 40 UNLIMITED $17.00
All-plywood construction of this 35" tunnel design minimizes total cost. Good for beginners, but plenty fast for experienced boat racers. By Dave Frank.

No. US2872 HARBOR TUG $17.00
An all-wood, 37" L.O.A., RC tugboat with electric drive, bow thrusters, and even a device to retrieve other boats. Designed by Francis Smith.

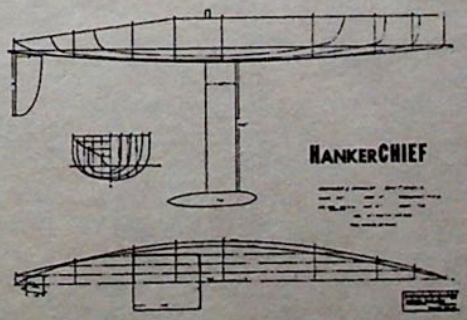


No. 12841 DUNLAP 3.5 VEE $13.00
Offshore racer style 31" inboard powerboat of all-plywood construction. Jerry Dunlap.



No. 6841 SPRINT 7.5 $13.50
Jerry Dunlap's outboard tunnel hull racer for 7.5 Class. Two-sheet plan.

No. 12792 EXCALIBUR $11.00
A fast RC tunnel hull constructed of plywood, for 3.5cc outboard power. It was the first stock outboard tunnel to top 40 mph. By Jerry Dunlap.



No. 1079-S5 HANKERCHIEF $6.50
Hull lines drawing for a competitive 50/800 class RC sailing yacht. Uses Bingo sail rig. By John Hanks.

No. US2921 SPORTY 4 $6.00
Sharp-looking 19" runabout by Graham Goodchild, for electric outboard power and two-channel RC. Simple balsa and plywood construction, with all patterns shown full size.

U.S. BOAT & SHIP MODELER PLAN ORDER:

Enclosed is my check or money order in U.S. funds, for the plans indicated by Number and Name. Most orders shipped 1st class within 3 days.

Name.....

Address.....

City.....

State.....Zip.....

Please send the following:
Plans Catalog #2 ($2.00)....$.....
#, Name.....$.....
#, Name.....$.....
#, Name.....$.....
#, Name.....$.....
#, Name.....$.....
#, Name.....$.....
sub-total.....$.....
Calif. res. 7.75% sales tax..$.....
Foreign Orders Add 50% to sub-total for shipping & handling
.....$.....
U.S. add S&H to sub-total:
Up to $10 order, add $2.00..$.....
$10.01-20.00, add $4.00.....$.....
$20.01-30.00, add $6.00.....$.....
$30.01-40.00, add $8.00.....$.....
$40.01-50.00, add $10.00....$.....
$50.01-60.00, add $12.00....$.....
$60.01-70.00, add $14.00....$.....
$70.01-80.00, add $16.00....$.....
$80.01-90.00, add $18.00....$.....
over $90.01, add $20.00.....$.....

Total enclosed.....

send to:

Gallant Models
Plans Service
P. O. Box 2459
Capistrano Beach,
CA 92624-0459

PRODUCT SURVEY

BY ELOY MAREZ

THE AIRTRONICS "EXZES" RC SYSTEM

The clean lines and modern styling of the Exzes transmitter are esthetically pleasing as well as functional with the proper dimensions, feel and balance.

The rear view of the case shows the curved grips which contribute greatly to the overall comfortable feeling and ease of operation.

ADVANCES IN RC equipment technology have taken place very rapidly with the advent of the "microprocessor," the Integrated Circuit (IC) which has made small computers and computer-based devices possible. In RC, we saw the first major steps being taken with airplane-type radios, as that is the largest and most profitable market.

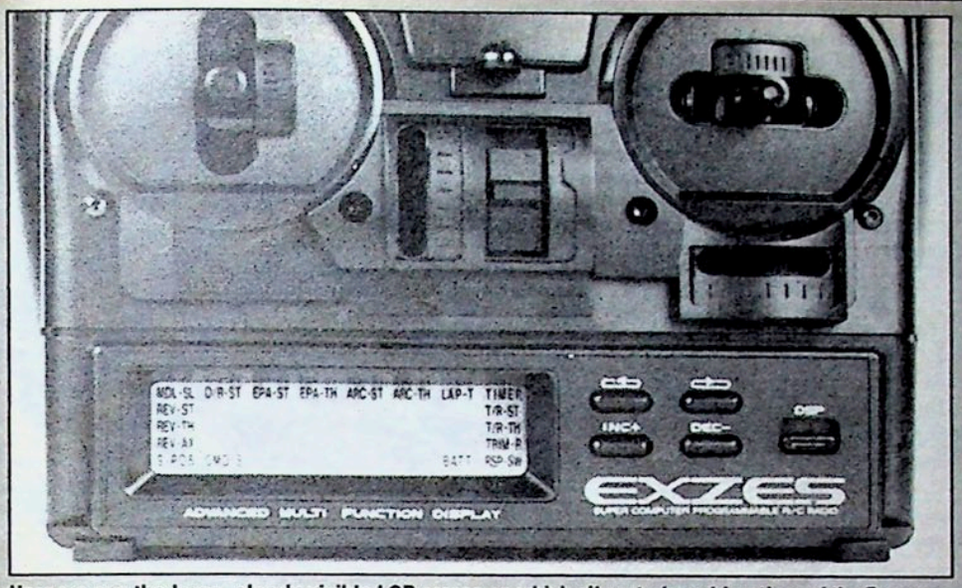
In due time, some companies — those to whom "customer service" seem to be more than just words — applied their expertise to equipment for we minorities; those whose primary interest in RC is other than airplanes. Such an example is the Airtronics "Exzes" radio control system, a three-channel FM RC system, which incorporates the latest in microprocessor electronics — but which is mechanically designed for non-flying models, i.e., all things that float!

As for the Exzes, by now you will have looked at the photos, and before you write it off as being a 'stick' radio, let's discuss that a little bit. I do know that "wheel" radios are preferred by the majority, but I have never been convinced that the reasons given are completely valid. To begin with, RC airplanes — including many that are now consistently breaking 200 mph true airspeed — are flown with sticks. This obviously requires great precision, and in spite of the fact that the same logic for driving boats with a wheel can be applied to airplanes: "You don't drive 'real' boats (or planes) with a stick!

And if the fact that real boats are steered with a wheel is a plus for an RC system to be similarly configured, there is a definite minus, as you'll never find a real boat whose throttle is operated with a trigger.

As a matter of fact, because a stick operated throttle has a much longer throw than a trigger, fine power adjustments are easier to make. You should not write off a radio of the quality of the Exzes simply because it is equipped with control sticks!

First to impress you will be the mechanical quality; the transmitter fits comfortably in your hands, with moulded grips on the rear that your hands curve around naturally. The sticks operate smoothly, with positive feel. Both stick



Here we see the large, clearly visible LCD screen on which all controls and functions of the Exzes are adjusted with one percent accuracy. Note few controls.

length and tension are adjustable. All switches and controls have a firm, clean feel to them; the trims are ratcheted, and the power switch is recessed to prevent accidental operation.

There are a number of interesting and useful auxiliary function switches and levers, which we will discuss in turn. It is equipped with both a convenient carrying handle and a neck strap hook. The needle-type meter is handy to verify that the unit is on and that proper battery voltage is available, though more precise battery information is displayed on the programming screen.

As stated earlier, this is an FM system, available on all of the assigned 27 and 75 MHz frequencies. It is in all effects what has come to be known as a "computer" radio, with all of their features and advantages. Effectively, it is a stick version of the popular Airtronics "Caliber" pistol grip system. For those of you new to such systems, let us walk through a fast review.

First of all, working through the display screen, it is possible to program the transmitter for three different models. That is, one can set completely different servo throws, directions, trims, etc., and bring such information back at the touch of a button. No more running out of trim or built-in control problems when changing from one model to another. This has a sort of side benefit, in that you will never pick up the wrong transmitter, and if you use only one, you will become much more adept with it than if you switch to different ones constantly.

A decided advantage is that with this type of system, all of the control adjustments are made at the transmitter, can be done while running and are actually more precise. For example, in setting the rudder throw, it is no longer necessary to stop, turn things off and change position of a clevis, with which only rough adjustments can be made anyway.

With a transmitter of this type, you can adjust rudder throw, while running, with one degree accuracy. Think about it, no more too much or too little, no more fumbling around — you can be in perfect trim your first time out with a new boat. Different conditions? Want to try something new? Simply dial it in — you can always return to the previous settings, rapidly and perfectly, any time you should want to.

Once you have experienced the advantage of seeing all control information digitally displayed, and adjustable by 1% at the push of a button, you will find it extremely difficult to do without it.

The tag "computer radio" implies to the inexperienced that you have to have computer experience in order to understand one of these radios. Such is not the case. It is a greater necessity to understand your boat and its needs. The next step is to match the transmitter to it.

You already know most of the terminology displayed on the screen: REV (Reverse), D/R (Dual Rate), EPA (End Point Adjustment), etc. To set or modify any of these functions, it is only necessary to bring them up on the screen, and press a button marked "Increase" or "Decrease." What could be simpler?

In addition to those functions just mentioned, the Exzes features:

Adjustable Rate Control (ARC), with which you can modify the characteristics of steering and throttle, including setting the point of such action.

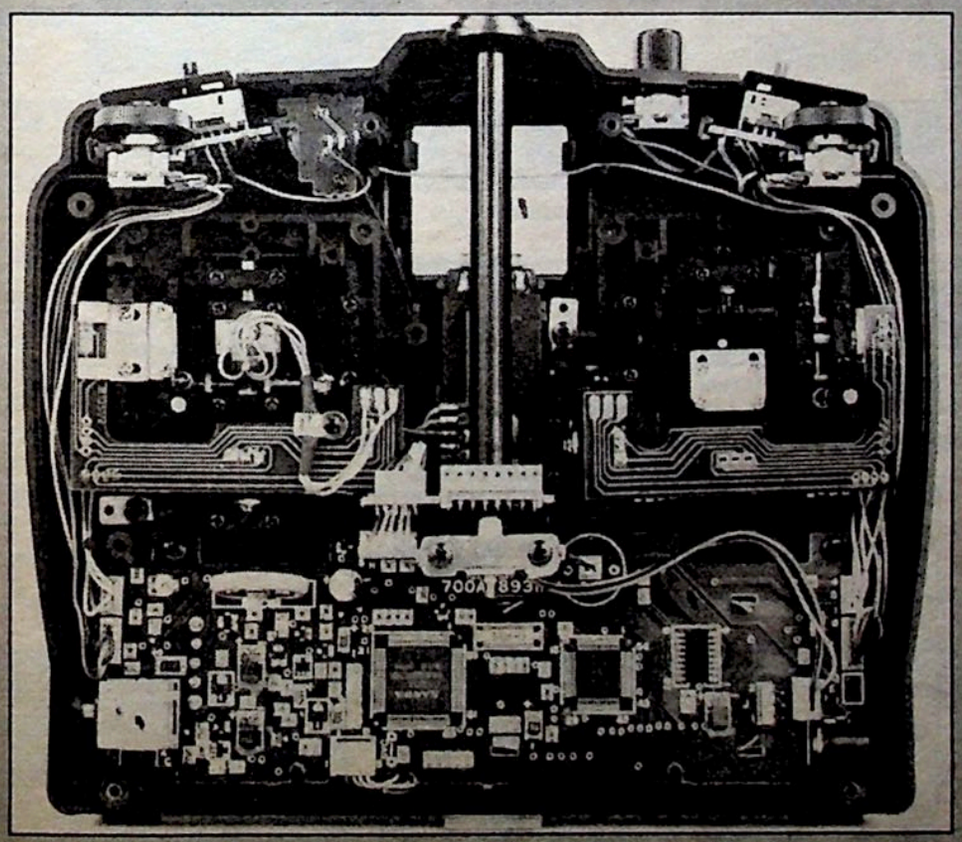
Trim Rate Adjustment — sets the amount and effectiveness of the trims.

Trim Memory — enters running trim into memory for future use.

Steering Dual Rate Trim — allows adjustment of steering effectiveness while running.

Starting Position Switch — for setting glow engine throttle at its best position for starting.

Stop Watch with Alarm — for lap or total time, with audio.



The inside of the Exzes is of high quality both mechanically and electronically - note the use of modern Surface Mount Technology construction throughout.

Display Switch — permits making adjustments without transmitting a signal.

Direct Servo Controls — operates servos without transmitting.

Battery Voltage — displayed digitally in 0.1V increments.

Battery Alarm — provides a audio warning if battery capacity becomes critical.

Interchangeable modules — for band changing between 27 and 75 MHz bands.

I have found that it is easier to understand a transmitter like the Exzes if you have it and an operational model in front of you. Understanding step-by-step instructions without seeing the effect is extremely difficult. Suffice to say that such an explanation is given in the manual, and will not take long to master.

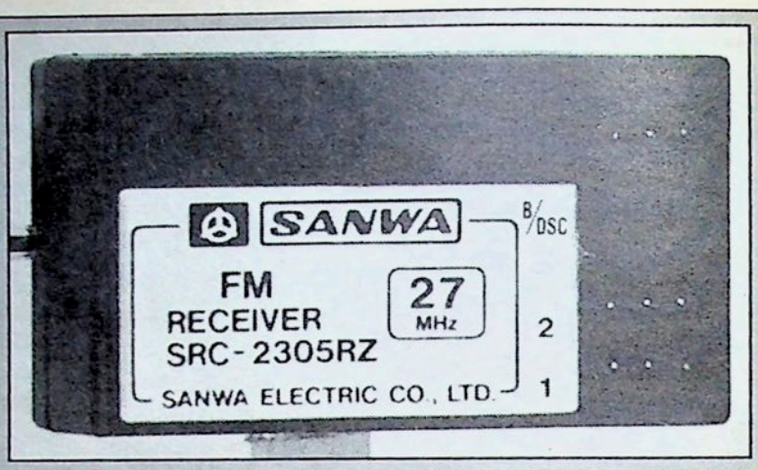
The Exzes transmitter requires eight "AA" batteries. High quality alkalines are recommended and unless you are extremely active, will last you a whole season. A NiCd pack and companion charger is available from Airtronics, should you prefer. If using alkalines, it is recommended that they be removed during long periods of non-use, as even the best ones will occasionally leak, with disastrous results.

A small soldered-in lithium cell is used internally to maintain the memory when the unit is turned off. It should be replaced every five years or so; the display will indicate "ERR" when the time comes. Such replacement needs to be done by qualified technicians, preferably Airtronics' Service Center.

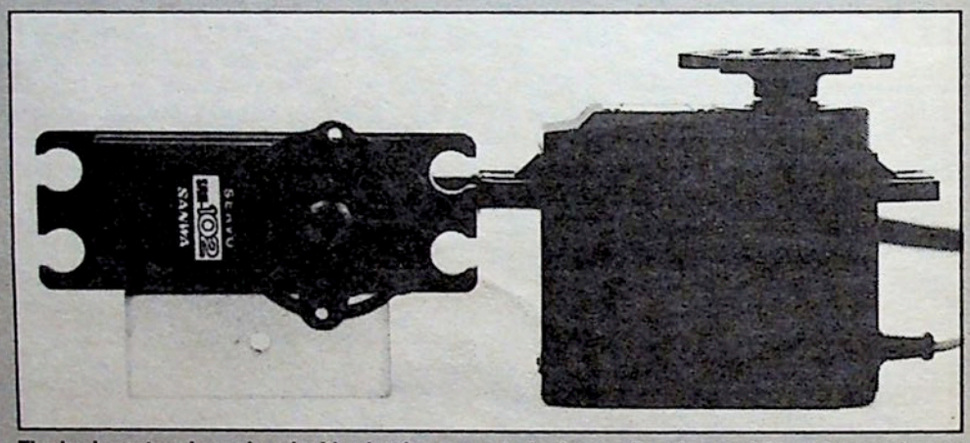
The receiver/servos battery is your normal four-cell 4.8V pack, though the servos are rated for five-cell 6.0V and will operate slightly faster and with increased torque if so powered. The units can also be BEG powered in electric installations so equipped. Instructions for proper hookup are included, though there is nothing unusual in that respect.

This then, is the Airtronics Exzes, a modern no-compromise two-sticker for those who have tried it and liked it, and for those with otherwise open minds who are always on the lookout for the better mousetrap!

Like its sibling the Caliber, the Exzes is available in a combination of ways with various servos and/or electronic speed controls. Check your nearest Airtronics dealer, or with Airtronics directly for the latest information and pricing. ***USB***



The companion 2305 receiver is BEG equipped for up to seven cells. It measures 1.89 x 1.18 x .75" and tips the scales at exactly 2.04 ounces, including the crystal.



The basic system is equipped with what has come to be known (by size, weight and torque) as a "Standard" servo, though all other specialized Airtronics servos are plug-in compatible.

Buy Hobby Lobby's ***NEW CATALOG 26*** *for $2.50* and get* ***$6.00 off your first purchase*** *from Hobby Lobby!*

Catalog 26 is the best one we've ever put out! It has over 150 major new items in RC that you have never seen before! Plus 10 more pages of full color photos of *the best stuff™* ever offered in the RC hobby!

Call (615) 373-1444 and order Hobby Lobby's NEW Catalog 26,
or send in the coupon below.

To: Hobby Lobby, 5614 Franklin Pike Circle, Brentwood, TN 37027, USA

Send me **Catalog 26 and the $6.00 discount voucher:** USBSM

Name

Address

City State Zip

Charge to my credit card:
☐ Amex, ☐ Visa,
☐ MC, ☐ Discover

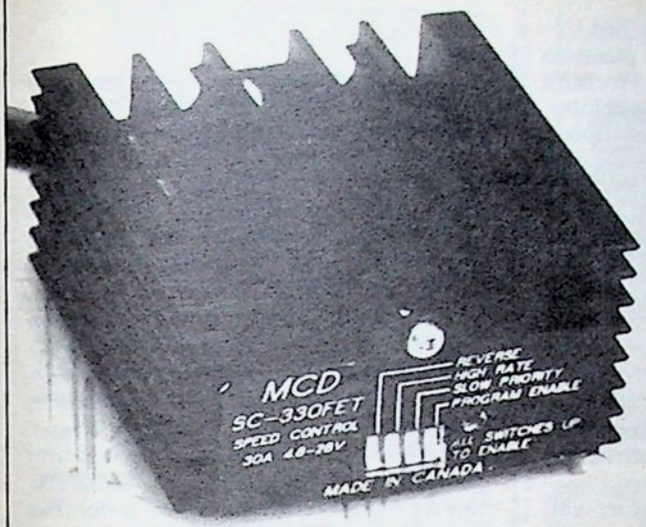
Number:

Expires:

***$2.50** in USA and Canada. **$5.00** elsewhere. Catalog 26 will be automatically sent FREE to existing Hobby Lobby customers in the USA.

Do you want it AIRMAIL?
☐ To USA, Canada, Mexico - **$4.50** (total charge)
☐ To Everywhere else - **$6.50** (total charge)

HOBBY LOBBY
INTERNATIONAL, INC.®
5614 Franklin Pike Circle
Brentwood, TN 37027
(615) 373-1444 • Fax: (615) 377-6948



DEALER INQUIRIES INVITED

MCD Model Control Devices

The SC-330DIGISPEED is an *improved* version of our *proven* SC-300FET Speed Control.

NEW FEATURES ARE:

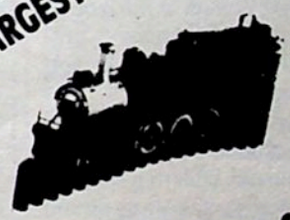
- Microprocessor controlled for improved slow-speed control
- EEPROM memory of initial setups–no pots to adjust for range and neutral
- Dual-range control stick characteristics user-selectable: linear for normal control; logarithmic for improved slow speed control (stick is less "touchy" at slow speeds)
- 14-gauge silicone wire
- Dual-frequency user-selectable; both low-Hz for low noise (no whine), and high-Hz for efficient use in high-performance motors
- Fully proportional forward and reverse
- MOSFET output with NO direction relay to stick
- 4.8 to 28 volt operation
- 30 amp continuous, 100 amp surge capacity
- 100% optically isolated output stages
- Thermal overheat shutdown circuit with auto re-start
- Provision for water-cooling of heatsink
- 1 YEAR LIMITED WARRANTY
- Dimensions: 1.3" H x 2.3"W x 2.5"L
- Weight: 5oz.

U.S.: $124.95 CDN: $144.95

To order, send check or money order to:
MODEL CONTROL DEVICES
P.O. Box 173, Bobcaygeon, Ontario Canada K0M 1A0 (705) 738-1335

15th ANNUAL N.W. MODEL EXPO '96

THE PACIFIC NORTHWEST'S LARGEST MODEL SHOW

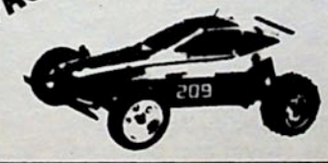


FEB. 3rd - 4th

9 AM-6 PM SATURDAY
10 AM-5 PM SUNDAY

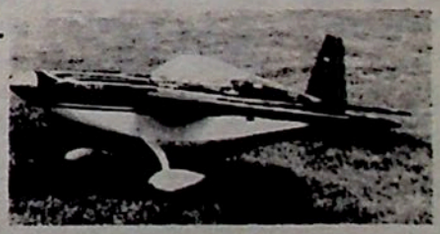
WESTERN WASHINGTON FAIRGROUNDS
PUYALLUP, WASHINGTON

SWAP SHOP - RESERVATIONS ONLY
CONTACT: DON SWEASY (206) 847-1279



RADIO CONTROLLED MODELS

OVER 80 MANUFACTURERS—SWAP SHOP—HUNDREDS OF MODELS—CONCESSIONS
AIRCRAFT—BOATS—CARS—RAILROADS
INDOOR R/C CAR RACING—BOAT DEMONSTRATIONS IN OUTDOOR POOL
CONTROL LINE DEMONSTRATIONS—R/C HELICOPTER DEMONSTRATIONS



FOR INFO. CONTACT: BOB FORD (206) 848-3943
P.O. BOX 73939, PUYALLUP, WA 98373
OR DAVE TURNER (206) 537-9613

Sponsored by the Mt. Rainier R/C Society

ADULTS: $5.00
CHILDREN (6-12): $3.00 w/adult
SENIOR CITIZENS: $3.00

SUBSCRIBE TO U.S. BOAT & SHIP MODELER

See page 9.

HOVERCRAFT *continued from page 29*

push rod.

• The running light, which in the wiring diagram is hooked to the propulsion motor, only allows it to come on when that motor is running. If you feel you need that extra touch of realism, I suggest hooking it to the lift motor, so that it's on whenever you're operating the model.

ADDITIONAL EQUIPMENT

There are three pieces of gear that the modeler will need to provide to complete this kit; a two-channel radio system, an electronic reversing speed control and a six- or seven-cell NiCd battery pack and charger.

I used the JR Python radio system — a two-channel pistol grip AM transmitter, NET-112; a two-channel receiver, NER-102; and two 27 oz.-in. servos, NES-510. Because of its list price ($99.95), it will be considered an entry-level system, but it has the features of a more expensive setup: selectable-rate steering control, indented throttle and steering trim controls (so they won't be bumped), servo reversing switches, an analog battery meter, a NiCd charging jack and an ergonomically designed grip.

The SK-5 requires an electronic reversing speed control. We used the Rebel TSC-R10 from Tekin Electronics, which has outstanding features like fully proportional forward, brake and reverse control; adjustable reverse delay from 0-4 seconds plus and reverse disable; high frequency regenerating operation extending run times up to 25%, factory installed motor and battery connectors; built-in high efficiency heatsink for cool operation; thermal overload protection; and QuickTune one button electronic setup for precise forward and reverse response tuning.

For the battery pack, I went to the Dynamite line of performance products (Distributed exclusively by Horizon Hobby Distributors) which recently introduced the Dynamite Super Sport 1800, a six-cell NiCd battery pack. Coupled with the Dynamite Mega 2 charger, it's a combination that can't be beaten.

SEA TRIAL

Included in the assembly manual for the Kinetics SK-5 Hovercraft is a section that covers the operating guidelines, including preparations, actual operations and even some competition set-ups. I've been informed that the assembly video will include operating tips and procedures plus actual running footage.

Ideally,there is no actual contact with any surface over which the hovercraft travels. All maneuvers, turns and direction changes have to be accomplished by the coordinated use of the throttle and rudder.

The model operates best over smooth and level surfaces. Parking lots, level driveways and water surfaces, especially ice, are ideal. Avoid grass, deep pile carpeting or soft powdery snow.

The most important part of the set-up is ballasting. It is essential that the model hovers in as nearly perfect a horizontal attitude as possible. This assures a uniform air discharge under the seal bag, and minimizes seal wear.

Proper balance is achieved by moving the battery pack around until the correct attitude is achieved. Differing surfaces will require minor adjustments to obtain the most efficient operation.

I used a lot of trial and error to determine the best placement of the battery pack. I found that, while on water, the trim needed to be slightly aft. On a hard surface, the trim needed to be slightly forward.

The first surface that I tried the SK-5 on was my hallway tile floor. I experienced the "ah-ha phenomena" almost immediately. The battery pack was over to one side, causing greater air discharge from the opposite side, resulting in movement towards the heavier side, in what I would call a perfect demonstration of Newton's Third Law of Motion.

The hovercraft responds as if it were a weightless body, reacting to outside forces, especially the propulsion motor. This makes operating the SK-5 more akin to flying an airplane than driving a boat. Maneuvers need to be anticipated and executed almost prematurely. Oversteering is normal for the novice, but do not be discouraged. Driving a hovercraft (at least a model of one) is quite easy once you get the hang of it.

After perfecting my control responses on my tile floors and patio, I tried the backyard pool. It was a different world. I re-trimmed the craft, increased the rudder response via the JR Python transmitter controls and I was back in the water in no time.

My last stop was a Pacific beach, where I tested the SK-5's amphibious capabilities. I needed to split the difference in the trim department, but I retained the rudder throw setting and had a great time proving that model hovercraft have arrived in the civilian world on the West Coast.

What could be next? Well, Joseph Sladky of Kinetics Inc. tells me that there is a proposal by some enterprising individual to begin ACV passenger service along the Southern California coast, utilizing the flood plains of the normally dry river beds, where they meet the ocean, as arrival and departure locations. ***USB***

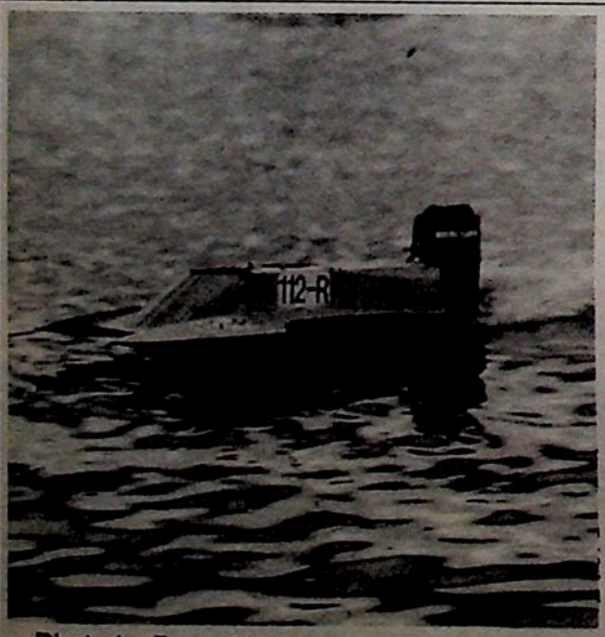
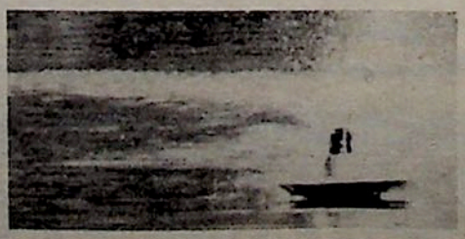


Photo by Dave Worley

AFTERBURNER
ELECTRIC OUTBOARD HYDRO

Fly down the straightaway with this new, ultralight 1/5 scale model of Mike Bartlett's 2 time high point winning stock outboard hydro. Carve through the corners with 6, 7 or 12 cells of power.

- Length 23 1/4"
- Width 12 3/4"
- Balsa/Plywood const.
- All parts are precut
- Radio box and lid
- Servo trays
- Plans/Instructions
- Set up sheets
- Performance tips
- Turn fins/brackets



BLACKWELL
RACING BOATS

8655 S.W. Sorrento Road, Beaverton, OR 97005
(503) 643-3961 After 4:pm Pacific StandardTime.

STRICTLY SAIL *continued from page 23*

If we look carefully at the mainsail leech between the clew and the lowest batten, there seems to be evidence of a cupping to weather. It may be that the sunlight just happened to hit that triangular slice of the sail, but if not the cupping represents a real potential for power loss. If it is cupping, it will act like an airplane flap and cause increased drag as well as additional weather helm, which is something that STAR hulls generate on their own when they heel.

In Photo 5, we finally get to use the draft stripes that are on this sail and they provide good benchmarks as to shape and twist. I'd suggest at least two on the jib, so that twist can be assessed. I'd add a third one to the main for the same reason.

Photo No. 5. Twisted sails on a reach with draft stripes showing.

The mainsail is seen to still be twisting, and some reflections in the red head panel of the main shows that the material used is too weak and is deforming under the pressure it is carrying. The materials used in the head of such sails needs to be stronger than the lower panels, as the stress converges at the head. Control of camber in the upper 1/3 of a STAR 45 mainsail is the winner's edge!

I'm experimenting with some new hull design software and can enter hull forms from a digitizing pad quite quickly — then squeeze and stretch the hulls to come up with different displacements, beams and so forth. If you have a favorite design that you have been itching to modify, send me a full-sized set of stations and we'll see what we can do.

Send your photos, questions, comments to: Rod Carr, 3011 - 177th Ave. NE, Redmond, WA 98052. ***USB***

FRANK'S
MOSQUITO BOAT HOBBIES
& P.T. Boats
1/20th Scale

HOWARD ENTERPRISES
Dumas • Robbe • Ace • Scale ships
866 W. 19th St., San Pedro, CA 90731
Fax (310) 514-0818
Catalog $3.00

Rocky Mountain Shipyard
Selection, Service, Savings
Books: Ship modeling, Naval and Maritime history
Plans: Age of Sail, Steam, Liners, Warships, Subs, R/C Combat
Free shipping over $35.00
For Catalog send $4, U.S. delivery ($5 elsewhere) to:
590 Ronlin Street, Dept. USB
Grand Junction, CO 81504

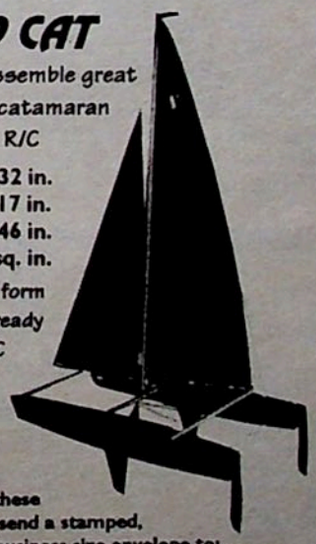
Ships N' Things, Inc.
- Hard To Find Fittings
- R/C & Static Kits
- Off-The -Shelf Or Customized Power Plants
- Submarine Parts
- Running Hardware
- Electronic Parts
- Tools

Catalog $5.00 US
P. O. Box 605 USB
Somerville, NJ 08876
(908) 722-0075
FAX: (908) 725-8397 ✱ 24 Hrs.

OWN A MACHINE SHOP
Do your own machining and shop work with a Smithy 3-in-1 Lathe • Mill • Drill

FIX IT YOURSELF!
•Easy to use!
•Save Money!
•Save Time!
•As low as $895
For *FREE* Catalog Call:
1-800-345-6342
(Ask for operator MOD)
Smithy®
or write:
Smithy Dept. MOD
PO Box 1517
Ann Arbor, MI 48106-1517

WILD CAT
An easy to assemble great sailing small catamaran for 2 Channel R/C



length	32 in.
beam	17 in.
height	46 in.
S.A.	450 sq. in.

Available in kit form or assembled ready to sail with R/C installed
Kit $89.95
Assembled $285.
For details on these and other kits, send a stamped, self addressed business size envelope to;
VICTOR MODEL PRODUCTS
12260 WOODRUFF AVE., DOWNEY, CA. 90241
(310) 803-1897

RIDE THE NEW WAVE OF RC SAILING
The RC Laser goes from the box to the water in under 7 minutes. It's preassembled and comes with a 2 channel radio. All you need are batteries and water 2 feet deep! Please Contact:

Laser® RADIO CONTROLLED
OUT THERE TECHNOLOGIES LLC
61 GREENPOINT AVENUE
BROOKLYN, NY 11222
TEL: 718-349-3685
FAX: 718-349-3686
SALES: 800-349-8919
Laser is a registered trademark of Smith-Laser, Inc.

SUBSCRIBE TO
U.S. BOAT & SHIP MODELER

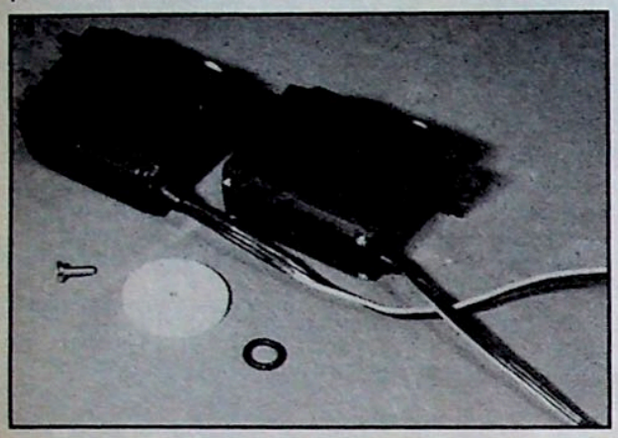
MOVING?

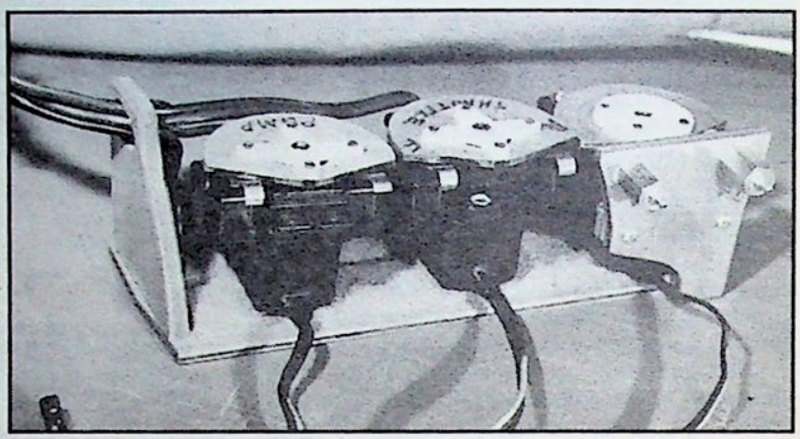
Allow six weeks for change of address to:
U.S. Boat & Ship Modeler
P.O. Box 2459
Capistrano Beach, CA 92624-0459

HARMS WAY *continued from page 31*

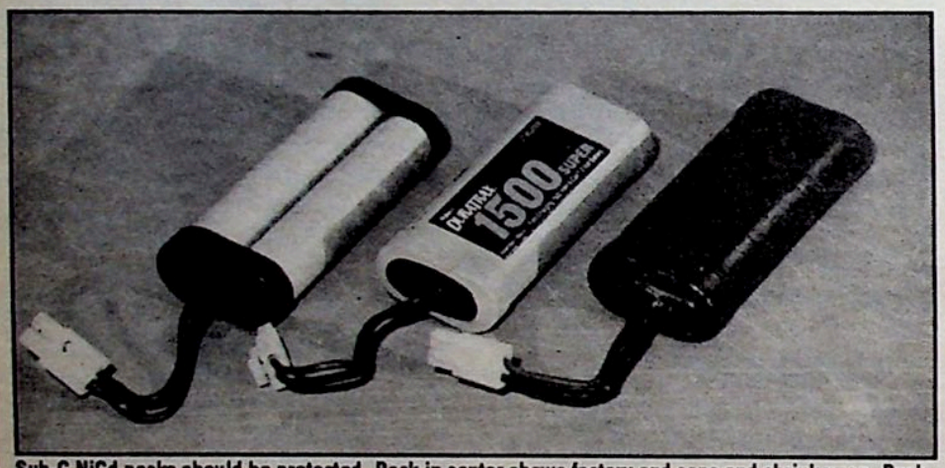
ner. These items can be somewhat difficult to locate (check your yellow pages for a Dow Corning distributor under "plastics" or "moulding") and are rather expensive, but are worth it.

To apply this to the receiver, I first Dremel two large holes in the receiver case, one at each end on top. The silicone is mixed per Dow's directions and slowly poured through a hole. After curing for 24 hours I carefully remove the case to check for voids and these are painted with a new mix and the case reassembled. The nice thing about the moulding silicone is that it has natural release characteristics and can later be completely removed if desired.





■ ABOVE: Two standard servos. The one at left has had the case seams, wire leads and lead boot covered with red rubber tool handle dip. O-ring and grease between case and wheel will seal output shaft. ■ ABOVE RIGHT: Three servos for author's HMS Inflexible mounted "in the open," without a radio box for protection. All three have tool handle dip and greased O-ring treatment. Two servos to left have throttle and pump switches glued to servo sides and are held in place with Velcro. Servo at right is mounted solid for control of BB cannon valves.

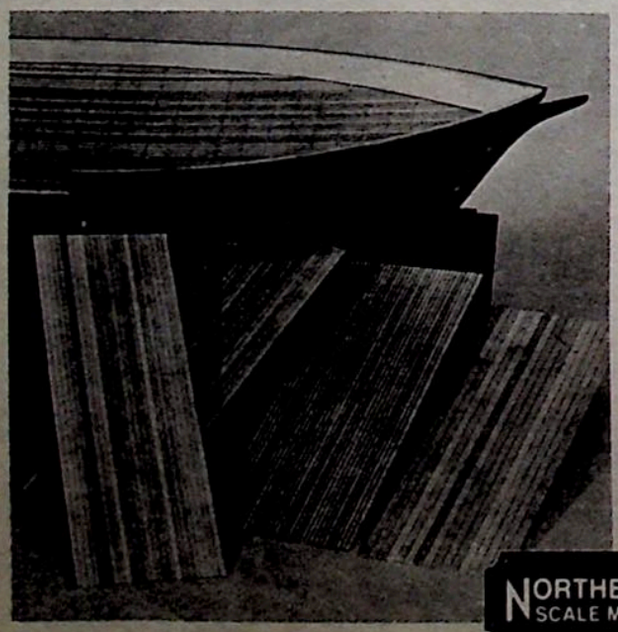


Sub-C NiCd packs should be protected. Pack in center shows factory end caps and shrink wrap. Pack to left shows shrink wrap removed, cells are in paper tubes that will absorb water if not sealed. Pack to right has been dipped in rubber tool handle dip, waterproof.

Do not attempt to use hardware store silicone glues or caulking, as they contain acetic acid which can corrode and ruin a PC board, as well as being permanent and non-removable.

A third method, tried by only one person that I know of, but works well nonetheless, is to slowly and carefully coat all surfaces of the PC board with thick set CA glue, shooting each layer with Kicker for a quick cure. This effectively and permanently encases the receiver in acrylic plastic. The person in question here is none other than James Foster, the only three-time winner of the IR/CWCCs coveted von Fluegel Trophy and a well respected builder, battler, and technological innovator.

continued on page 56



NEW SHIP DECKING & SCALE MODEL WOODS

...in Basswood, for the true craftsman

Northeastern's handsome ship decking is authentic in appearance, easy to work with and really saves time! Available in .050 thick laminated sheets with 4 choices of spacing representing caulking between boards. Our extensive line of scale model hardwoods are used by hobbyists and professional prototype modelmakers around the world.

OVER 1001 ITEMS...

• Ship decking in 3" x 22" lengths with spacing in 1/16", 3/32", 1/8" and 3/16" • Carving blocks up to 24" lengths • Belaying pins • Scale sheeting • Dowels 3/64" to 1/8" • Double beads • Wood strips from .012 and up • Wood for mastheads, hatch covers, etc. • Mahogany, cherry and walnut also available in many items • Satisfaction guaranteed or money back!

NORTHEASTERN SCALE MODELS INC
P.O. Box 727US
Methuen, Mass. 01844
Tel. (508) 688-6019

See your local dealer or write today for our catalog and price list. Please send $1.00 to cover postage and handling. Refundable with first order.

New Modeler's Calculator Solves All Your Proportional Scaling Problems—*In Seconds!*

Scratch-Builders! Amazing New* ModelCalc™ *Lets You Work Like a Pro with 22 Built-in Scales!

Now you can solve all your scale modeling problems right in feet-inches and fractions with the all new *ModelCalc* scale modeler's calculator!

This amazing new tool will save you hours upon hours of time on any project dealing with scaled dimensions.

And best of all, it puts an end to costly and embarrassing errors caused by inaccurate conversions using hard-to-read scale rulers, tables or regular calculators.

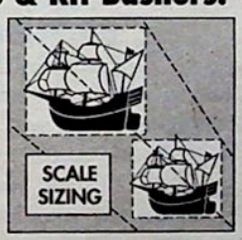
22 Built-in Modeling Scales!

You get instant *and* accurate scale sizing solutions — in either direction! — with the built-in Actual Size, Scaled Size and Scale/Ratio keys! Just enter the actual or prototype size (in any dimensional format) and you get the exact *scaled* size with the press of a single button. Or, enter the scaled size and solve for the prototype size.

And all measurements are given based on your *standard* (1:1) ruler, so there's no need to squint at those hard-to-read special scale rulers ever again!

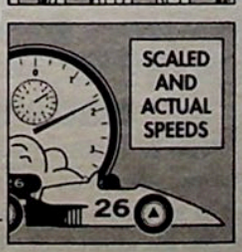
Introduced at the Chicago Modeling Show, the all-new ModelCalc is the perfect tool for any scale modeler.

Custom Scales Just for *Exacting* Scratch-Builders & Kit-Bashers!



You can create and permanently store up to 4 Custom Scales of your very own! Or, scale directly from books and photos and be sure that everything is built to that same unique scale. Plus, *cross-scale* solutions can easily be found in seconds.

Right Angle Keys Keep You Squared-Up & Shipshape!



The *ModelCalc's* right angle keys give you instant and accurate layout solutions for squaring-up cabins or shipboard structures, laying out decking, solving for rigging angles, structural braces, supports, etc.

Plus, a circular solutions key provides areas, circumferences and arc lengths. Great for storage tanks, smoke stacks, cylindrical structures, gun-turret turn radii and more.

DEALER INQUIRIES INVITED!

Ever Wonder "How *Fast* is That Thing Going?"

— Now you'll *know!* Just enter the distance traveled and the time it took, and the *ModelCalc's* built-in Speed, Time and Distance keys will give you scaled and actual speed solutions for any size model or prototype. You can even "clock" your own daily commute or jogging speed!

Save Time & Eliminate Errors on All Your Dimensional Problems

Adds, subtracts, multiplies and divides right in feet, inches and fractions — from 1/2's to 1/64's — or no fraction at all.

You enter a dimension just as you'd say it — 7 [Feet] 3 [Inch] 3 [/] 8. What's more, you can even mix fractions (3/8 + 9/16 + 17/32) *and* formats (Feet + Inches + Meters) in any of your problems.

Ends Embarrassing Measurement Conversion Errors Forever

You can *instantly* convert between all dimension formats: Feet-Inch-Fractions, Decimal Feet (10ths, 100ths), Decimal Inches, Inch-Fractions, Meters, Centimeters and Millimeters. It also converts in Square and Cubic formats of each.

These conversions are great for woodworking, DIY and "honey-do" projects, too!

3 WAYS TO GET YOURS!

✓ Ask Your Local Dealer, or...
✓ Call for the Dealer Nearest You, or...
✓ Order Direct: 30-Day Risk-Free Trial

CALCULATED INDUSTRIES INC.

You Get All These Modeling Scales & Much More, *Built-in!*

HO	N	O
Z	G	S
1/8	1/12	1/16
1/24	1/25	1/32
1/35	1/48	1/72
1/76	1/100	1/144
1/200	1/350	1/700

1/1200...*Can't Find *Your* Scale? Just Enter it as Your Own *Custom* Scale!

Time-Saving "Utility" Functions and More!

— The *ModelCalc* also has a "paperless" tape, "Smart" fractions and works as a standard math calculator with +/–, square-root, π, delta%, Memory (+/–) and Auto Shut-off. It comes with an example-filled User's Guide, 2-year Lithium battery, vinyl case and a full 1-year warranty.

Try One With Confidence!

Try the all-new *ModelCalc* in your shop for just $59.95, plus $5.95 shipping. If you're not 100% satisfied, simply return it within 30 days for a full, no-questions-asked refund! *Order Yours Right Now!*

For the dealer nearest you, or to order direct, **Call Toll-Free, 7 days, 24 hrs:**

1-800-854-8075

or FAX: 702/885-4949

ORDER RISK-FREE TODAY!

Toll-Free: 1-800-854-8075
Or FAX: 702/885-4949

Calculated Industries, Inc.
4840 Hytech Drive • Carson City, NV 89706

Yes! Rush me ____ *ModelCalc*(s) for just $59.95 each plus $5.95 shipping — add $1.75 shpg. for each additional unit. For price in Canada, call Jubilee Rose Ent.: 1-800-667-1476.

❑ Include _____ Leather Case(s) at $12.50 each.

❑ Add _____ initials |__|__|__| at $1.75 per initial.

Name _____

Address _____ (No P.O. Boxes, Please)

City/St/Zip _____

❑ Check (In NV add 6.75% tax)

❑ Charge (Circle one): DISCOVER VISA

Acct.# _____

Exp. Date ____/____ Day Phone _____

Sign Here _____ USBS-1295

NEED INFORMATION? CONTACT:

American Model Yachting Association, 2793 Shellwock Ct., Columbus, OH 43235. President: Edward Helmle, Jr.
Contact: Harry S. Robertson, membership secretary, (614) 457-1185.

American Power Boat Association (R/C Modeling Commission), 29624 Lahana Way, Fremont, CA 94538
Contact: Judy Prigley, vice president, (510) 656-7072

International Model Power Boat Association
and International Scale Model Boating Assoc. (div. of IMPBA)
5855 S. State Rd. 9, Fountaintown, IN 46130. President: Joe Ingrao.
Contact: Sue Bathauer, Executive Secretary, (317) 861-3701

North American Model Boat Association, 1815 Halley St., San Diego, CA 92154. President: Doug Twaits.
Contact: Cathie Gailbraith, Executive Secretary, (619) 424-6380

Scale Ship Modeler's Association, 3936 Constellation Rd., Lompoc, CA 93436. Contact: Gene Schimmler

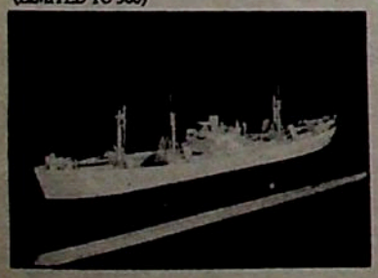
Classic Model Marine

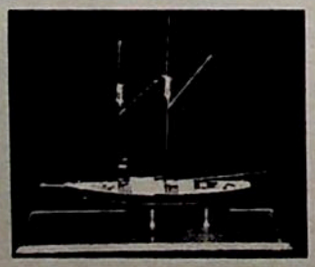
Custom built boats
Accessories
Boat kits

Drivers
Helmets
Life Jackets 1/4 Scale 48" Mahogany Crackerbox Runabout Gas Powered
Fred Diel Products 1616 Sydney St. San Luis Obispo Ca 93401
805 545 0712 Other Classic models Available Fax 805 543 0703

THE LOS ANGELES MARITIME MUSEUM ANNOUNCES RELEASE OF TWO BEAUTIFUL SCALE MODELS OF TWO FAMOUS VESSELS

WWII LIBERTY SHIP WITH CASE
1/200 SCALE WATER LINE MODEL $1195.00
OR FULL HULL $1295.00
(LIMITED TO 300)





BLUENOSE FISHING SCHOOLER WITH CASE
1/100 SCALE FULL HULL $1895.00
(LIMITED TO 250)

ORDERS ARE NOW BEING TAKEN. ORDER NOW!
THESE COLLECTIBLES WON'T LAST! DON'T DELAY! THESE MODELS WILL BE SIGNED, NUMBERED AND CERTIFIED BY THE *LA MARITIME MUSEUM.*

ATTENTION MODELERS
OUR NEW MUSEUM QUALITY KITS AND FITTINGS ARE NOW AVAILABLE TO THE GENERAL PUBLIC. MOST OF THE MODEL ORIGINALS ARE NOW ON DISPLAY AT MUSEUMS AROUND THE WORLD. *SEND $3.00 TO COVER POSTAGE FOR CATALOG.* FOR MORE INFORMATION PLEASE WRITE TO *LA MARITIME MUSEUM, BERTH 84, SAN PEDRO, CA 90731. ATTN: FLAMM MODEL DEPT. A OR CALL (310) 548-7618, FAX # (310) 832-4537.* WE ACCEPT VISA OR MASTERCARD.

HARMS WAY *continued from page 54*

SERVOS

The main idea in protecting a servo is to prevent water from entering the case. The motor, feedback pot and gears prevent internal protection such as described for receivers, so everything is done from the outside.

Before mounting a servo, paint the entire outside of the case (excepting the area immediately around the output shaft) with several coats of Dip-It brand rubber tool handle dip. This product can be found at just about any hardware store. It dries and shrinks to a very tough water resistant coating, which can later be cut and removed if needed.

For the output shaft, I place an O-ring, that will just fit without stretching over the shaft, and pack in and around it with Ace Hardware plumber's grease. This comes in a small tube, for about two bucks, and will not melt out like Vaseline will. Place the output wheel over the shaft and O-ring and tighten the set screw, lightly squishing the O-ring.

Make sure that there is no binding of the shaft when the servo operates. If so, loosen up the set screw slightly. The plumber's grease is non-conductive and also works well for packing the sockets, plugs and connectors between the receiver and servos, to prevent shorting between the contacts.

BATTERIES

Do not be fooled by the plastic shrink-wrapping and end caps around sub-C NiCd packs. These will not prevent water from getting to the cells. In addition, some sub-C cells are encased in a paper tube within the plastic shrink wrap. If water manages to infiltrate the pack EVEN ONCE, the paper tube will be soaked, the cells will short, corrode and be ruined.

To protect receiver or sub-C NiCd packs that power drive motors, dip or paint them with the same Dip-It brand tool handle dip used on the servos. Just make sure the rubber extends well up the wire leads to prevent seepage back into the pack between the wires.

CONCLUSION

I hope that these methods for protecting your radio gear, along with the information given in previous columns, will give you the confidence to give RC Model Warship Combat a try. It is really the only hobby that I have ever tried that has not become even slightly old or boring after 15 years of participation. And now, remember that with the proper protection, you and your radio can enjoy "safe sinks."
USB

NEW EDITION FOR 1996!

NOW AVAILABLE!

MODEL BUILDER PLANS CATALOG #3

Fully Illustrated and Indexed
for Easy Selection
of the Model You Want to Build!
MORE THAN 850 PLANS!

- RC Sport & Scale
- RC Sailplanes
- Old Timers
- Free Flight, Gas, CO_2, Rubber, Gliders, Scale
- Control Line
- Westburg's Three-Views

– from the pages of more than 25 years of *MODEL BUILDER* magazine!

REVISED EDITION

Catalog #3

also includes BOAT PLANS — Power and Sail!

PLEASE SEND ME_____COPIES OF THE NEW *MODEL BUILDER* CATALOG #3.
ENCLOSED IS A CHECK OR MONEY ORDER AT $4.00 PER COPY
(FOREIGN $6.00 PER COPY – PAYABLE IN U.S. FUNDS) .....TOTAL:_____

Name_____
Address_____
City_____ State_____ Zip_____

GALLANT MODELS, INC.
P.O. Box 2459
Capistrano Beach, CA 92624-0459

56-PAGE CATALOG ONLY
$4.00
(Foreign Orders $6.00)
POSTPAID
(refundable with first order)

BY BRIAN K. CRAVEN

THE TEXAS TRIPLE CROWN!

Or the smashing defeat of the Texas Axis fleet

The DMK Bismarck is trapped in Allied crossfire, and sinks about 45 seconds later. Photo by David Haynes.

IT WAS mid-morning, with a hard wind blowing from the east, as the ships gathered in Houston to open the 1995 battling season. Houston was but the first leg of the Texas Triple Crown.

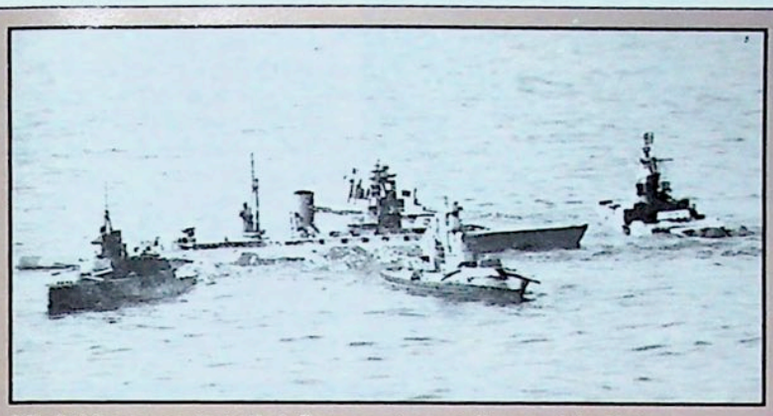
The Texas Triple Crown is the oldest of all the meets for R/C warship combat. The three meets in Texas have been around as long as the hobby/sport. This year, the legs were held first in Houston, then in Fredrickburgs (birth place of Adm. Chester Nimitz) and then on to Abilene, all before the Nationals. The meets in Texas have a dual propose, first to help get your ship ready for the Nationals and also to see who will have bragging rights over the winter months.

For the past four years, Texas battlers have battled straight (Allied vs. Axis). It has been a long three years in Texas for the Axis fleet, as they have battled hard — but they have not won a battle in over three years. Would this continue? Only time would tell!

The first two days of battling started out very badly for the Axis fleet. They had one *DMK Bismarck* (Wade Koehn) not show up and the other *DMK Bismarck* (D.W. Fluegel) was having radio problems and had to drop out. That left the heavy cruiser *Prinz Eugen* (Paul Fluegel) and the Japanese battleship *Mutsu* (Adm. David "Dirty" Haynes) to do battle against a battle-hardened Allied fleet. This fleet was made up of the *U.S.S. Washington* (Adm. Jim Pate), the *HMS Queen Elizabeth* (Chris Pearce) and the *U.S.S. South Dakota* (Brian Craven). The five ships gathered on the lake. With very high seas, it looked as if the captains had more to worry about from the waves on the lake than the BBs from the enemy ships.

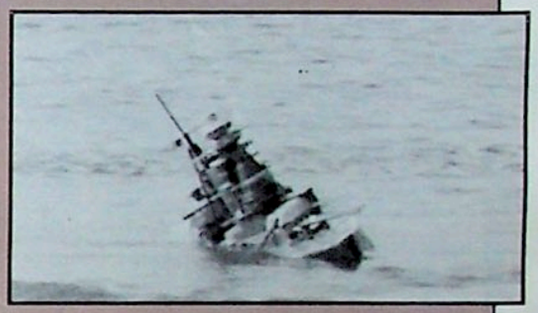
War was declared and the two fleets smashed into each other. As Adm. Pate has often said, "Concentrate your firepower on one ship and sink it!"

In this case, it was the Japanese battleship *Mutsu* that became the target of concentrated firepower from ALL three allied battlewagons. The *South Dakota* blocked the *Mutsu*, as the *Queen Elizabeth* and *Washington* each picked a side and pounded the *Mutsu* hard and fast. As the four ship moved apart, it was very easy to



Allied ships concentrate their firepower to mortally wound the Mutsu.

David "Dirty" Haynes goes out and get the Mutsu from its watery grave.



Top to bottom: The Mutsu took a merciless beating from the Allied ships and slowly sinks as a result.

see that the brave *Mutsu* was mortally wounded and would not last five minutes.

Seeing that the *Mutsu* was in trouble, the *Prinz Eugen* moved in to help out. The *South Dakota* engaged the *Prinz Eugen* and it was now down to a run-and-gun fight. The *Prinz Eugen*, with its faster speed, calls five minutes and stays just out of reach of all three Allied battleships.

Less than one minute into to the *Mutsu*'s time, the *Mutsu* has succumbed to her battle damage and slipped under the heavy seas. This is the first sink of the battling year, but it will not be the last!

As the second sortie starts, the *Prinz Eugen*'s strategy is to run-and-gun with the Allied ships and not get into a close-in slug fest. The Allied fleet wants to pin the *Prinz Eugen* in close to the shore and then pound her. As the battle begins, it looks as if the Allied fleet has pinned the Prinz Eugen on the shoreline and the Q.E. moves alongside, placing round after round into the thin-skinned cruiser, with help from the *Washington*. Before the two battleships could do mortal damage, the *Prinz Eugen* slips away from the trap and calls five minutes. The cruiser scrambles for open water with the whole Allied fleet in hot pursuit.

The *Prinz Eugen* leads the three battleships on a merry chase around the lake, but with 1 1/2 minutes left on his timer, the *Prinz Eugen* disappears from the surface of the lake. She was the victim of battle damage and the very heavy seas. The Allied fleet had won again!

The next battle was held in Fredrickburg and was quite a bit more interesting. The Axis fleet was made up with the Fluegel's (D.W. and Paul) *DMK Bismarck* and *Prinz Eugen*, Wade Koehn in the *DMK Bismarck* and Adm. David "Dirty" Haynes in the *Mutsu*. The Allied fleet included Adm. Jim Pate with the *Washington*, Chris Pearce in the always deadly *Queen Elizabeth* and two rookies, Joe Kutz with a new fiberglass *HMS Invisible* (from Swampworks) and the very slow and over-weight French destroyer, *Le Triumphant* of Brian Rigney.

I remember the great days of being a

For all MODEL BOAT builders, R/C or Static, from beginner to amateur to professional, we offer over 300 kits: Warships, P.T. Boats; Pleasure, Work, Tug, Ferry Boats; Passenger, Freight Ships; Speed and Sail Racers; Submarines; Hydrofoils; Hovercraft. Also 34 motors; 47 steam engines/boilers; 320 running gears; 210 electric and 140 sail accessories; 800 fittings. From around the world and domestic. Send $11.00 U.S. ($15.00 elsewhere) cash only, for our 200 page catalog and supplement #1 (refundable). Or send $4.00 U.S. ($5.00 elsewhere) for supplement #1 only (refundable). Plenty of new items in all categories in the supplement.

Model Boats Unlimited
P. O. Box 1135
Haddonfield, NJ 08033
(609) 783-9163

MICROGLASS

Lightweight Fiberglass Moldings
For The Serious Scratchbuilder

MODELS 4" - 40" AT CONSTANT 1:32 SCALE
TUGS - PT'S - COAST GUARD - MORE
OVER 15 HULL AND PLAN SETS OFFERED
CUSTOM MOLDING WORK ACCEPTED
MOLDMAKING SERVICES

CATALOG $3.00

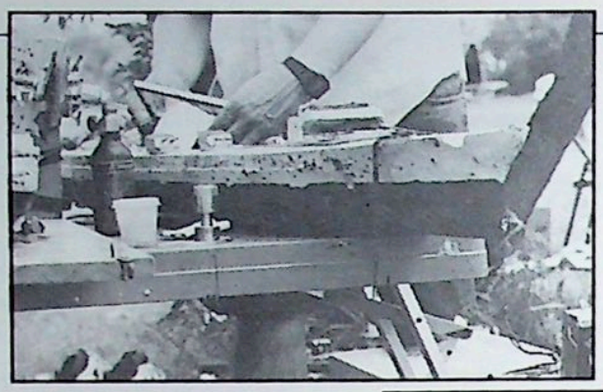
2960 PEARCE RD.
N. TONAWANDA, N.Y. 14120
TELEFAX (716) 731-9717

New and Refurbished **RADAR GUNS**

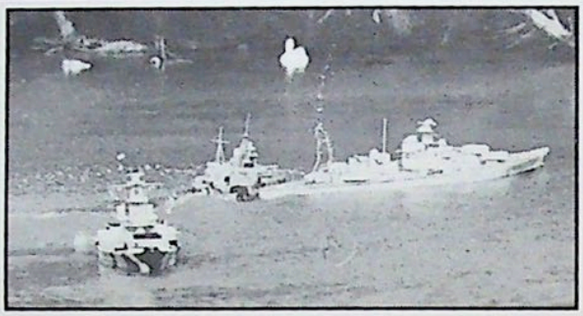
Call for Our FREE Catalog

Over 20 Different Guns
Great for Lots of Sports
Ideal Tool for the Racer
Rental Program Available
Priced From $395 - $2000

RADAR SALES - 5640 International Parkway - Minneapolis, MN 55428
Phone (612) 533-1100 Fax (612) 533-1400



Left: Battle damage is evident on the Bismarck. Below: A BB from the Q.E. splashes into starboard side of the Bismarck.



rookie. I was the perfect neophyte, four battles and I sank all four times. I was missing from the Allied fleet because work wanted to test my flying skills, so the *South Dakota* was left on the shelf for this conflict. The battle on paper looked as if the Allied fleet would not have to pursue the Axis around the lake all day. The battle was delayed in order to help the new capains get their ships prepared.

Just before the battle, Adm. Jim Pate was heard saying to D.W. Fluegel that, "If the Axis fleet could not win one this time, that they never would!"

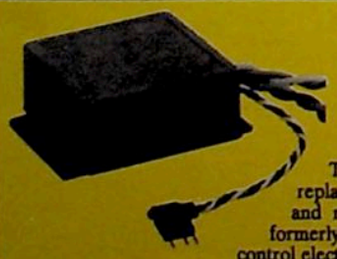
Bold words and only time would tell if they would ring true. As warfare is declared, both of the Allied rookies, almost from the start of the battle, end up in the weeds. This battle was not starting out very good for the Allied fleet. With two Allied ships stranded in the weeds, the *Mutsu* moves in trying to sink the hapless Allied ships. The *Mutsu* moved in for the kill and pounded 12 or more rounds into the *Invincible*. At about that time, it looked as there was hope for the Axis. As often happens, the "reliability" bug hits the Axis fleet. The *Mutsu* goes dead in the water because of radio problems. At about the same time, the *Le Triumphant*, having a good pump, has lasted out its two minutes and is pulled out to safety. The *Mutsu* is dead in the water, with two Allied battleships closing in on it. Her captain raises the white flag and declares her sunk. The battle ended with the Allied fleet winning again. There was no more battling on Saturday, as the weather got very cold and the wind picked up. So all battlers set off to visit the Admiral Nimitz museum for the rest of the day.

Sunday was a one-battle day because of the distances the competitors had to drive to get back to work on Monday morning. The same ships would battle minus the French destroyer. Once again, there was too much wind for a ship as small as a destroyer, because it has only 1/4-inch freeboard. As hostilities are declared, the *HMS Invincible* has a problem with its pump (it stopped) and then it goes out of control. The *Mutsu* and *Bismarck* pay back the Allied fleet with shot after shot into the *Invincible*. Then as the cannons stop firing, the *Invincible* slowly slips from sight and sinks to the bottom.

The hapless *Prinz Eugen* has stopped behind the *Washington* cannons and with the help of the wind, the *Washington* fires salvo after salvo from her triple stern cannons. With all of that exposed red hull area (below the waterline), *Prinz Eugen* limps off from the area and is seen pumping continuously as she tries to find a place to hide out (deep in the weeds).

DOUBLE YOUR SPEED

PROPORTIONAL REVERSE AS WELL AS FORWARD



These Electronic Throttles replace the servos and rheostats formerly required to control electric motors in R/C models. Only 1.8 X 1.87 X .82", these optically isolated units plug into your receiver like a servo but use no receiver power. High frequency MOSFET's chop motor current 5 times faster than other controllers to yield smooth low speed operation, precise intermediate speeds & calibrated braking. H-bridge design uses no relays. No exposed transistors to short out. Compatible with Futaba AM(G), AM/FM/PCM(J), Airtronics, Aristocraft, JR, Cirrus, Cannon/Deans & Ace.

The **HW55**, with forward & reverse fully proportional, gives superb manueverability for **R/C CARS**, smaller performance boats or larger scale hulls. The HW55 handles most '05 Hot Winds, 540's, Astroflight ferrite motors operated at 14 cells or less, and most other motors running at 18 Amperes genuine continuous duty or 45 Amperes starting surge. **$109.95 each.**

The **RET44**, with fully proportional reverse as well as forward, is an ideal replacement for Futaba & Dumas controllers for scale boats, tanks and robots. It controls Dumas, stock Mabuchi 540 in boats, Astroflight 02-10 motors, gear reduced Astro 15-25 on 12VDC and most other motors rated 4.8-16 Volt DC at 12 Amperes continuous duty or 25A starting surge. **$79.95 each.**

NO RISK 21 DAY EXAMINATION. If you are not **completely satisfied** we will buy back any item you purchase from this ad. One year limited warranty. For technical questions please call **(805) 929-5055.** To **ORDER** mail check or Visa/Mastercard number with expiration date or **CALL TOLL FREE TO:**
(800) 8-VANTEC / (800) 882-6832.

VANTEC 460 CASA REAL PLACE, NIPOMO, CA 93444

The *Queen Elizabeth* pulled up outside the weeds and began to shoot into the mess, but without success. The weeds were indeed too thick and it looked as though the *Prinz Eugen* might survive. However, the *Queen Elizabeth* had other ideas and got up a good head of steam and pushed herself into the small area between the weeds and shore.

Shots rang out in rapid succession, as the battleship's sidemount cannon tore into the waterline area of the *Prinz Eugen*. Hearing the carnage from afar, the rest of the warships converged on the scene. The *Washington* lines up with her triple stern cannons to add injury to the insult. The captain declares his ship sunk. The *Queen Elizabeth* extricates herself from the weeds, only to find out that she is slowly sinking, due to a faulty pump switch. The battlecruiser slowly slipped beneath the waves, the losses now even for both fleets — but the scores were 4,435 for the Allied fleet and 1,775 points for the Axis fleet. Once again, the Allied fleet emerged triumphant!

The third and final stop of the Texas Triple Crown — Abilene! The battle in Abilene saw the introduction of two new Allied captains, Bob Eakin with the *Montcalm*, and *Jarrett Durha* with the *HMS Birmingham*. The rest of the battlers were: *Bismarck* (Fluegel), *Prinz Eugen* (Paul Fluegel), *Mutsu* (Haynes) and the *Bismarck* (Koehn). The Allied fleet had the *Washington* (Pate), *Queen Elizabeth* (Pearce) and the *South Dakota* (Craven).

The first battle began tentatively with the Allies at full strength and the Axis minus the *Prinz Eugen*. The two *Bismarcks* were busy cruising around in neutral waters, while the *Mutsu* was gamely attempting to break the Allied blockade and get to the cruisers. *Mutsu* signaled the *Bismarck* for help, but neither wanted to commit to battle just yet. The three Allied battleships were jockeying for position, trying to get around any of the battleship and trap them. The *Mutsu* took advantage of this opportunity to go after the cruisers. The cruisers were eager to shoot at a big Axis battleship. They danced on the bow of the *Mutsu* annoying it with their stern cannon fire. As the shooting started in earnest, things got very busy and both *Bismarcks* came into the battle to get in some easy shots.

The *Montcalm* was on five and being chased by the *Mutsu*, which seemed to be giving the cruiser a very hard time. The Allies set course to intercept and soon trap the *Mutsu* close ashore. The *Mutsu* took some heavy damage from the Allied ships, but her fate was sealed when her pump clogged and she kisses the bottom, just as the sortie winds down.

Thing had started off great for the Allied fleet, but the Axis would now be reinforced with the *Prinz Eugen*. The Allied fleet is very concerned with the damage the *Montcalm* has taken in the first sortie and decided she would need to be protected in the second sortie. The second sortie began with one of the *Bismarcks* (Koehn) calling five minutes and runs to the far side of the lake. This left the other *Bismarck* (Fluegel) to do battle with the combined might of the Allied fleet.

The *Montcalm* was sitting still next to shore, pumping for its life. The *Bismarck* and the *Prinz Eugen* move in to punish the cruiser. With the Allied fleet all converging on the same spot, the *Prinz Eugen* got off lucky — making a quick strafing pass and then escaping to seaward — with only a few below-the-waterline hits from the *Washington*. The *Bismarck*, however was not so lucky, at one point receiving triple stern cannons from both the *South Dakota* and the *Washington*, one on each side and the *Queen Elizabeth* attacking the bow with help from the *Birmingham*.

The *Bismarck* turned to seaward and tried to escape the trap. Her captain was heard to say, "So this is Hell." With the damaged *Bismarck* moving out to open water with both pump blazing, she sinks less than 30 feet from the battle area. The *Montcalm*, meanwhile, survived her five minutes without taking any more damage because of the strong Allied defense. The score: Allied fleet 8,535, the Axis fleet 965 points.

After this debacle, the Axis fell back to regroup and prepare for the second battle of the day. The *Bismarck*'s (Fleugel) and the *Montcalm* were lost for this battle, because of water in the radio box. The first sortie began with the *Washington* and *Queen Elizabeth* embroiled with the *Mutsu* and the *Bismarck* (Koehn) in a two-on-two action.

Meanwhile, the *Birmingham* and the *South Dakota* pursued the *Prinz Eugen* down the long lakeshore. The *Birmingham* was successful in getting the *Prinz Eugen* turned around with accurate fire from his stern cannons. The *Prinz Eugen* went from the frying pan into the fire, because he ran right into the slower but meaner *South Dakota*. After being trapped close to shore and taking severe damage, her captain raises the white flag and declares her sunk. On the other side of the lake, the Axis battleships were putting up a game fight with the two other Allied battleships. Soon, they were all out of ammunition, and headed out to safer waters to wait out their five minutes.

As the second sortie began, the *Washington* and the *Queen Elizabeth* set course to finish off the *Bismarck*, while the *Birmingham* and the *South Dakota* set off to

A CHOICE OF . . . TWO WORLDS

OUTBOARD Marines

INBOARD Marines

Be it OUTBOARD or INBOARD, whatever is your choice, we offer 4 OUTBOARDS and 5 INBOARDS from which to choose — each a winner in its class!

The first K&B Marine Engine, the K&B 3.5cc (.21), was introduced in 1976. Each new engine, outboard or inboard, as it made its appearance was immediately proclaimed a champion, excelling in performance, durability, power and speed. Year after year K&B continues to maintain their leadership.

Can you ask for more? You can . . . and your answer will come from K&B. And why not . . . they have been leading the field for 17 years and they plan to maintain that position.

4 OUTBOARD ENGINES
- K&B 11cc (.67) shown
- K&B 3.5cc (.21)
- K&B 7.5cc (.45)
- K&B 13cc (.82)

5 INBOARD ENGINES
- K&B 11cc (.67) shown
- K&B 3.5cc (.21)
- K&B 7.5cc (.45)
- K&B .40 R/C Marine Sport
- K&B 13.4cc (.82)

For K&B's Unsurpassed Performance . . . "The Matched Performance System"
For K&B's Unsurpassed Appearance . . . "The Matched Finish System"

K&B MFG. Inc.
2100 COLLEGE DRIVE
LAKE HAVASU CITY, AZ 86403

ADVERTISER INDEX

Aeromarine Laminates 35
Blackwell Racing Boats 52
Boat South 8
Boca Bearing 7
Calculated Industries 55
Cole's Power Models Inc. 18
DTN Enterprises 28
Frank's Mosquito Boat 53
Fred Diel Products 56
Great Planes/Kyosho ..... Inside Front Cover
Harbor Models 19
Hartman Fiberglass 14
Hayes Products 45
Hitec/RCD 29
Ranger/Sea Nymph ..... Inside Back Cover
Hobby Lobby International 50
IMS Pasadena 28
International Marine Exchange 28
JPK Products 44
K&B Manufacturing 61
Los Angeles Maritime Museum 56
M.A.C.K. Products 44
Microglass 60
Model Boats Unlimited 60
Model Builder Plans Catalog 57
Model Builder Subscriptions 41
Model Control Devices 51
MRP Boats 5
Northeastern Scale Models 54
Northwest Hobby Expo 51
Octura Models Inc. 39
Out There Tech 53
Pop-U Manufacturing 8
R.C. Boat Works 21
Radar Sales 60
Radio Active Hobbies 25
Rocky Mountain Shipyard 53
SeaPhoto 14
Seeworthy Small Ships 38
Ships 'n Things 53
Sig Manufacturing 15
Smithy's 53
Swampworks Mfg. 3
Taubman Plans Service 38
Tekin Electronics, Inc. 39
The Dromedary 45
The Floating Drydock 39
The Scale Shipyard 9
Traxxas Corp. ..... Back Cover
U.S. Boat Plans Service 46-47
U.S. Boats T-Shirts 20
U. S. Boat Subscriptions 9
Vantec 60
Victor Model Co 53
Worth Marine 9

CLASSIFIEDS

IMPORTANT INSTRUCTIONS: Non-commercial (personal items) rate is 40 cents per word, with a minimum of $6.00. Commercial rate is 50 cents per word, with a minimum of $10.00. No advertising agency discounts allowed. Name and address to be counted, phone number counts as two words, abbreviations count as whole words and will be spelled out. All ads are payable with order, and may be for any consecutive insertion period specified. **Send ad payments to: USB&SM, Gallant Models •P.O. Box 2459 • Capistrano Beach, CA 92624-0459**

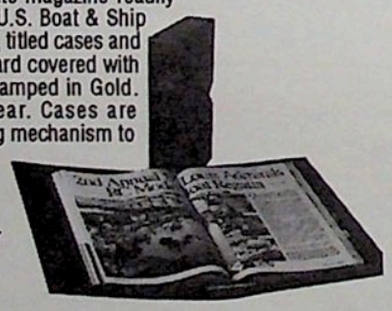
FOR SALE: New Dumas 1930 Chris-Craft model kit and accessories. Write Richard Frantz, 179 Lakeview Dr., Carlisle, PA 17013-1038.

REPLICA SWISS WATCHES: 18KT Goldplated! Lowest Prices! 2 yr. Warranty! Heavy Weight! Waterproof! Sapphire Crystal! Divers, Chronographs, others! Ph. (770) 682-0609; FAX (770) 682-1710.

Statement of Ownership, Management and Circulation. 1A. U. S. Boat & Ship Modeler Magazine. 1B. 0899496. 2. 30 Sep 94. 3. Quarterly. 3A. 4. 3B. $13.95. 4. P.O. Box 2459, Camino Capistrano, CA 92624-0459. 5. P.O. Box 2459, Capistrano Beach, CA 92624-0459. 6. Mark Thiffault, P.O. Box 2459, Capistrano Beach, CA 92624-0459. William J. Rice, P.O. Box 2459, Capistrano Beach, CA 92624-0459. None. 7. Gallant Models, Inc., C.P. Lewis, R.W. Arsenault, M.J. Pettygrove, P.O. Box 2459, Capistrano Beach, CA 92624-0459. 8. None. 10A. 52,705; 53,969. 10B1. 45,487; 45,731. 10B2. 4,136; 4,049. 10C. 49,623; 51,780. 10D. 400; 400. 10E. 50,023; 52,182. 10F1. 212; 199. 10F2. 2,470; 1,588. 10G. 52,705; 52,969. 11. Mark Thiffault, Publisher.

ORGANIZE AND PROTECT YOUR COPIES OF U.S. BOAT & SHIP MODELER

Now there's an easy way to keep copies of your favorite magazine readily available for future reference. Designed exclusively for U.S. Boat & Ship Modeler by Jesse Jones Industries, these custom-made, titled cases and binders are sized to hold a dozen issues. Reinforced board covered with durable leather-like material in dark Red. Title is hot-stamped in Gold. Free personalization foil included for indexing year. Cases are V-notched for easy access. Binders have a special spring mechanism to hold individual rods which easily snap in.



Please send _____ case(s); _____ binder(s) for **U.S. & Ship Modeler Magazine.**
❑ Enclosed is $ _____
Charge my: (minimum $15)
❑ American Express ❑ Visa ❑ MasterCard ❑ Diners Club
Card # _____ Exp. Date _____
Signature _____
Charge Orders: Call TOLL FREE 7 days, 24 hours: 1-800-825-6690

Quantity	Cases	Binders
One	$8.95	$11.25
Three	$24.95	$31.85
Six	$45.95	$60.75

PRINT NAME _____
ADDRESS _____
CITY/ STATE / ZIP _____

Add $1.50 per case/binder for postage and handling. Outside USA $3.50 per case/binder. US Funds only.
PA residents add 7% sales tax.

U.S. BOAT & SHIP MODELER
Jesse Jones Industries, Dept. 95 USB
499 East Erie Avenue, Philadelphia, PA 19134

do the same to the *Mutsu*. The *Bismarck* was maneuvered into a smaller area of the lake where she put up a good fight. But the pounding that the two Allied battleships put in to her was too much for her pump and down she went!

In the meantime, the *Mutsu* was out in more open space and was maneuvering round when her rudder jammed hard to starboard. As the *Mutsu* began to sail in large, lazy circles, the feeding frenzy began. All of the Allied ships empty their magazines into the big battleship before she slips beneath the waves.

For the second time this season, the Allied ships had succeeded in sweeping the sea clean of Axis warships. On Sunday, the winds pick up, blowing the waves directly towards shore. Wade and David were game, as were Jarret, Chris and myself. So we all set sail in the fierce seas and prepared to do battle. The result was one of the strangest battles this year.

War began with the *Queen Elizabeth* and *South Dakota* concentrating on the *Bismarck*, trying to trap her in close to shore. This was not very successful, as all of us had enough difficulty merely piloting our ships in any direction, much less hitting another ship. However, shots were exchanged, hits were given and received, and then, suddenly, a wave caught the *Bismarck* broadside and hurled her over on her side. The *Bismarck* did not recover from this abuse and down she went.

Meanwhile, the *Birmingham* was bobbing around on the waves like a cork, as she tried to line up shots. The two battleships set out in pursuit of the *Mutsu*, which was on five, but that came to a quick end when the *South Dakota* became stuck in reverse and proceeded to back across the lake, away from her captain, into very deep water (20+ feet). Fortunately, my pump was running, and somehow she went dead in the water and drifted in on the waves, a victim of a dead receiver.

The second sortie had just three ships in it, and this was cut short when the *Birmingham* sank due to the heavy seas and the captain's failure to turn on pump (rookie mistake). All captains wisely decided to heave to, rig for heavy weather and just sit and pump out for their five minutes. The score was Allied 1,755 to Axis 1,160 points.

The Texas Triple Crown battling ended, much as it had begun, with ships and men battling against the elements. In the meantime, the Texas Axis are licking the wounds and preparing for this year Nationals. If you have any questions about this hobby you can write to PBC Enterprizes Inc. or to Swampworks Mfg. (see advertising in this magazine). Best wishes and shoot hard and sink slowly!
USB

hitec®

10729 Wheatlands Ave., Suite C
Santee, CA 92071
(619) 258-4940

RANGER

Pro Transmitter Features Include:

- Hi-Impact, Titanium-Finish Case
- Fully Adjustable Trims
- Open-Gimbal Sticks
- 3-LED Battery Indicator
- Easy Ergonomic Style

Total System Package Includes:

- BEC HP-2RNB Mini-Receiver
- 2 Hot HS-300 Servos & Hardware

Sea Nymph

Use the Ranger to power Hitec's sleek new Sea Nymph electric powered racer.

The Sea Nymph comes ARF (almost ready to float) with a pre-joined hull and deck with a strong 550 motor, radio box and drive line already installed. Its sturdy construction and stable design assures maintenance free fun.

Team up with the Ranger and Sea Nymph for hours of racing fun!

TRAXXAS

RUN FASTER! RUN LONGER!

Nitro Vee drive system

TheTraxxas Nitro Vee is the first to feature the awesome speed, sound, and run time of a high-performance nitro boat, with the flexibility and convenience of an electric. Only Nitro Vee has the exclusive in-line clutch system, which allows it to **stop still in the water while the engine is running,** and then accelerate to get on plane almost immediately. When close to shore, the clutch gives Nitro Vee the freedom to manuever with the hairline precision of an electric. In addition, Nitro Vee is the **ONLY** gas boat that offers the **peace of mind** of the patented R.T.S. (Return-To-Shore) system (see sidebar).

Nitro Vee is built to perform, with the Traxxas water-cooled Marine .12 engine and the stability of its sturdy deep-V hull. The steerable outdrive directs the high-performance brass propeller's thrust for incredible steering response. The trim angle is fully adjustable so that you can control how the Nitro Vee rides in any kind of water. Dual exhaust outlets exit through the transom to provide exciting realism.

The fully-assembled Nitro Vee gets you off the workbench and onto the water fast. It is available with or without the high-power radio system. No other nitro boat is more hassle-free. See it at your local hobby shop today!

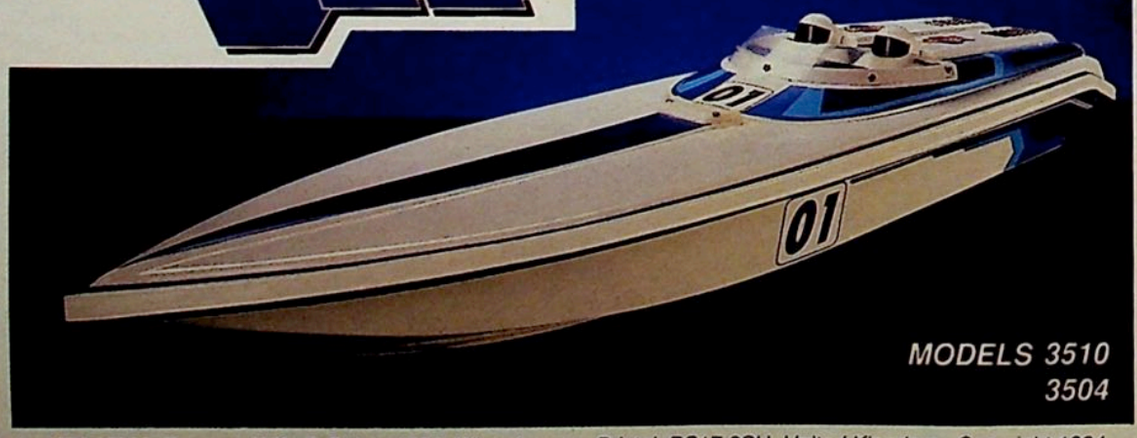
THE SECURITY OF RETURN-TO-SHORE

Are you worried about what to do if you run out of fuel in the middle of the pond? With Nitro Vee, it's **no problem!** Just pull back on the throttle, and a small, self-contained electric motor engages the main propeller to drive your boat back to you. There has never been an easier (or drier) way to retrieve your boat.

R.T.S.™

PATENT PENDING

NITRO VEE



MODELS 3510
3504

Traxxas Corp., 12150 Shiloh Rd., Dallas, TX 75228 **Traxxas U.K.,** P.O. box 1128, Winterbourne, Bristol, BS17 2SH, United Kingdom. Copyright 1994.